GOUT

ITS

CAUSES, CURE, AND PREVENTION.

"I should run into an endless digression, were I to enumerate possible physiological experiments, or to speculate on the mechanical improvements of medicine, which at present, as far as mechanical means of affecting the living system are concerned, is with us in a state that would almost disgrace a nation of savages."

Sir Humphry Davy,
Op. Col., Vol. iii, p. 324.

GOUT

ITS

CAUSES, CURE, AND PREVENTION.

BY AN ORIGINAL AND

MOST SUCCESSFUL TREATMENT,

FOUNDED ON THE

ORGANIC CHANGES IN THE HUMAN SOLIDS,

AND ON

THE FUNCTIONS OF THE SKIN;

WITHOUT THE USE OF COLCHICUM.

BY

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TO

HIS FATHER'S FRIEND AND HIS OWN,

JOSEPH FLETCHER, ESQ.

OF TOTTENHAM,

THIS TREATISE

IS INSCRIBED

AS A MARK OF RESPECT AND GRATITUDE,

BY HIS SINCERE, AND HUMBLE SERVANT,

THE AUTHOR.

WILTON HOUSE, BLACKHEATH;
June, 1850.

PREFACE.

In submitting to the public what, I flatter myself, will be found to be a greatly improved method of treating Gout, and its congeners, it is not with a view of superseding the use of medicine, but as an auxiliary to it, and to its application in a way, which has of late years been almost, if not altogether, lost sight of. I allude to the didermic mode of treatment.

Fully aware of the value of medicine, in the treatment of most complaints, still, we cannot be blind to the fact, that in some, and those not a few, the skill of the most eminent practitioner is baffled when trusting to it alone; and that, in such cases, we must either remain content to consider the disease as incurable, and allow our patients to suffer and die under the hands of the empiric, or endeavour, as it is surely our bounden duty to do, to discover new means of treating them.

I, therefore, simply protest against, our confining therapeutics to the use of drugs only, as, by so doing, we miss the more simple, but at the same time, in some instances, the more effective, means that nature points out to us.

There is one point of pathology which, perhaps, has not yet been sufficiently studied; viz., what the diseases are, that are endemic in certain countries. And again, what diseases particular countries escape from altogether? Thus, in tropical climates, (among the natives, at least,) gout is unknown, and not gout alone, but those disorders generally, that arise from eating abundantly of nitrogenised food; viz., such as originate in the lithic acid, diathesis. Here two facts claim our attention: first, that in tropical climates, the cutaneous vessels are always in a state of excessive action; and, secondly, that animal food is abstained from. From such data, it is the duty of the pathologist to draw his inferences, and ascertain, whether, by imitating this state of skin, in colder countries, and by limiting the consumption of animal food, he may not be able to produce similar beneficial results.

Such were the considerations, that first led me to propose to myself this new method of treating Gout, in which there will, nevertheless, be found to be no innovation in the practice of physic; but, in truth, simply the falling back upon, the authority, and practice, of the antient fathers of medicine, Celsus, and Galen. In their writings, we have ample proof, of the importance they attached to the thermæ of their time; from which, and from the vast remains that still exist, of the Roman baths, not only at Rome and other cities, but particularly those which have been more recently discovered at Pompeii, in an almost perfect state, we may feel assured, that their method of bathing was something very different to our own. It is this that I am anxious, with some modification, to bring before the notice of the profession.

It will naturally be inferred, that the class of diseases one would propose to benefit, by such means, would be those where the functions of the skin are at fault, or where we may desire to introduce our remedies through the cutaneous pores, rather than by the mouth. This will embrace rather a large class of diseases; but, on the present occasion, I intend to consider the treatment of Gout alone, reserving to myself the opportunity, hereafter, of referring to other complaints.

It is only of late years, that Physiology, guided by Chemistry, has pointed out to us, the great importance of the cutaneous functions; not only as organs of excretion, but also of absorption, and it is over these functions, particularly, that medicine has so little power, for which reason chiefly, the functions of the skin have been much neglected by modern practitioners. On the other excretory organs, we can act with a degree of certainty unknown in these: for instance, on the intestinal tube we are sure, not only of producing catharsis, but, by using appropriate purgatives, we can act with precision on that part of the canal only, we may desire to affect.

Not so, however, with the skin; on the contrary, although our list of sudorifics is sufficiently large, there is not one, the action of which, is not primarily on the stomach, and, with much uncertainty, ultimately producing diaphoresis.

With respect to the subject of this Treatise, Gout, there is, perhaps, no complaint, that more justly deserves to be styled the opprobium medicorum. True it is, that, by colchicum, helebore, and opium, we can alleviate the intensity of the paroxysm; but the remedy is really worse than the disease, inasmuch, as it is allowed on all hands, that it hastens the subsequent attacks, while, if frequently had recourse to, as certainly undermines the constitution.

Why gout should ever have shown itself so intractible of cure, I believe, that I have pointed out, in the following pages; but, whatever may be the fate of my theory, there can be no objection raised to the practice, for in no case that has hitherto fallen under my care, have I failed to relieve the patient, in an incredibly short space of time, whilst the general health is uniformly much improved.

Wilton House, Blackheath;
June, 1850.

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GOUT;

ITS CAUSES, CURE, AND PREVENTION,

&c. &c.

INTRODUCTION.

In a practical paper, like the present, it would be a waste of time to go into the history, symptoms, and varieties of Gout, which, in general, are as well known to the patient, who may have the misfortune to suffer under the complaint, as to the medical practitioner himself.

We, therefore, propose to confine our remarks to a consideration of the primary and predisposing causes of Gout;—the peculiar pathological condition which exists in, and is, in fact, the direct cause of, the gouty diathesis;—then endeavour to show, why the mode of treatment hitherto adopted necessarily fails in curing the complaint; —and, lastly, point out, by the help of physiological and chemical facts, the only rational means by which it is possible to remove it, and at the same time show, that the means here proposed are in direct accordance with nature's efforts to the same end. A few cases will then be given illustrative of the beneficial effects of the treatment pursued; and, in conclusion, we shall offer some remarks on the proper diet and regimen for gouty individuals.

A preliminary consideration of the constituent elements of the human body, and of the phenomena which take place during the process of their assimilation, will be so important in enabling us to point out satisfactorily to the general reader the causes of Gout, that it will greatly facilitate the clear understanding of the subject, if, as introductory to the above topics, we consider briefly,—first, the chemical nature of food; secondly, the phenomena of digestion and assimilation; thirdly, the change of matter, or "metamorphosis of tissue," constantly going on in the system; and, lastly, the peculiar and complex functions of the skin, with their relation to other organs.

CHAPTER I.

ON THE CHEMICAL CONSTITUENTS OF FOOD.

Although the ancients appear to have treated Gout more successfully than we have hitherto done, the reason of which will be hereafter apparent, yet the proximate causes of the complaint are beginning by us to be better understood. For this we stand indebted to Chemistry, which, after the grand discoveries she has made in physics, seems now disposed to foster her sister art of medicine.

Through chemistry we are made acquainted with the fact, that although the human stomach be not simply a laboratory, as once supposed, and that the essential principle of vitality is something beyond our ken, still, that nature works by chemical means, and is ever engaged in arranging and re-arranging (or decomposing) the proximate atoms of animal life, and that to a certain extent the body is governed by chemical laws.

There is nothing short of revelation that more beautifully or satisfactorily proves the existence of an Almighty mind, than the fewness and simplicity of the ultimate elements of animal and vegetable life. Thus, there are but four elementary principles essentially necessary, and but six generally employed, to form every variety of organic life: nitrogen, carbon, oxygen, and hydrogen, are the bases, to which sulphur and phosphorus may be considered supplementary. With these, infinitely varied in their atomic proportions, are built up not only the whole animal kingdom, but also every variety of the vegetable world,—from wheat, the "staff of life," to the poison of the deadly Upas tree.

It is also worthy of remark, that these four elemental principles are those also of which both air and water are composed; so that air and water may be considered in truth and fact as being the original elements of organic life.

Although the articles, both animal and vegetable, capable of being used as food by the omnivorous creature, Man, are innumerable, yet, in accordance with the simplicity of nature's laws, all may be divided, with great propriety, into but three distinct classes or kinds of aliment, that is, that the substances contained in each class will be found to possess similar chemical characters.

As the first or most important of these, stands what is called the ALBUMINOUS PRINCIPLE, which is distinguished from the rest by possessing for its chief element or base a large proportion of NITROGEN.

It comprehends all those articles of diet most essential to animal nourishment, and includes vegetable gluten* as well as animal flesh; viz., fibrin, as also albumen and gelatine—as the curd of milk, the white of egg, &c. These substances, although differing widely from each other in external circumstances, are essentially of an homogeneous character, for which reason Liebig comprehends them all (or rather the essential principle of each) under the generic term *Protein*. They are destined to form the constituent principle of all the animal solids, and are chiefly derived from the animal kingdom.

The next is the OLEAGINOUS PRINCIPLE, which comprehends all fats and oils, both animal and vegetable, and appropriates to itself more particularly the CARBON of the constituent elements. This principle does not appear to serve the purpose of nutrition, properly so called, but that of furnishing fuel for the production of animal heat.*

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* Although there can be nothing more dissimilar in external appearance than animal and vegetable food, yet, not only in the seeds of the cerealia (the corn tribe), particularly wheat, but in most vegetables used as food, there exists more or less of a principle termed *gluten*, which that distinguished chemist, Liebig, has shown to be identical with animal flesh, or the albuminous principle, in its chemical constitution. According as grain or other vegetables possess more or less gluten, so do they become more or less valuable as articles of diet. This sets at rest the question whether man *can* live on a purely vegetable diet.

The third and last is the SACCHARINE PRINCIPLE, which includes a very large class of substances, of apparently dissimilar character, yet all capable of reduction to the same chemical principles: thus, all fruit and herbs not containing gluten, as well as sugar, starch, and gum, are included in one class of chemical equivalents, and are all resolvable into the same elements, namely, carbon and water, in various proportions. They are all also capable of easy conversion into one another—as starch into sugar, and sugar into vinegar, and are all chiefly derived from the vegetable kingdom, and hence may be called vegetable aliment.

The starch, or amylaceous class of vegetables, seems to be more directly nutritious than any of the others, inasmuch as it may, for a time, be made the means of subsistence, although not of nourishment. From its having no proportion of nitrogen in its composition, it would seem incapable of entering into the structure of the muscular, or other albuminous tissues,* and more probably, perhaps, when we consider its component particles (carbon and water), helps to supply the material for oxygenation.

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* In all warm-blooded animals, including, of course, Man, the bodily heat, as is well known, is maintained at a temperature higher than that of the surrounding atmosphere. In them, therefore, two equally important but distinct functions have to be performed: the building up of the animal fabric, and the evolution of animal heat. It will be seen, hereafter, that the carbonaceous principle is devoted to this latter purpose.

There is some doubt about the uses of the gummy or mucilaginous principle: it is apparently alimentary, and nearly allied to the saccharine in its chemical character; perhaps it affords to the mucous membranes one ingredient of their secretions.

Dr. Prout† observes, that "It would appear to be the destiny of the lower orders of creation, to *prepare* the sustenance of those next above them; so that the food of each shall approximate in chemical character, as nearly as possible to its own constitution: thus, the graminivorous animals eliminate from grass and herbs the flesh, which is almost identified with that of the creature whose food it becomes. Whilst man, although a large proportion of his aliment is derived from the vegetable world, yet, from instinct, selects such articles as, strange to say, are identified with animal matter in their composition, and thus has much less to do in assimilating the different ingredients than would at first sight appear to be the case. He leaves to the lower animals, or to plants, the elaboration of these proximate principles, from sources less analogous to themselves, and contents himself with *reducing* them to one homogeneous mass, which thereby does not become altered in chemical character."

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* Dr. Prout has suggested the idea, that vegetable food not containing nitrogen, may probably obtain that element, by uniting with the bile in the duodenum (or first gut), and thus become capable of forming the albuminous tissues.—See his admirable work on 'Stomach and Renal Diseases.'

† PROUT'S '*Bridgwater Treatise.*'

In accordance with this view of the subject, we discover why articles of diet, comprehended under the saccharine class of substances, are more prone to disagree with the stomach than meat and bread: having no nitrogen in their composition, they are less assimilated to the animal body, and consequently require a more elaborate preparation, to which, in many cases, the powers of the stomach are unequal. From not possessing nitrogen, they readily assume also the acetous fermentation in the stomach, besides causing it to generate other acids, as the *lactic,* and hence heartburn, water-brash, with all the different phases of dyspepsia, are sometimes the consequence of eating saccharine and vegetable food.

To the three alimentary principles already mentioned, Dr. Prout has added a fourth, viz.,—The AQUEOUS. Water, indeed, not only in its separate elements, but also in its combined form, enters largely into the composition of the animal fabric. Every article of food must first be reduced to a pulpy and even fluid mass, by a most intimate union with water, before it can become a part of its constituent elements. Of the blood four fifths is found to consist of this fluid, and even of the solid parts three fourths. It is, therefore, most essential to animal life; but, from its simple and uniform character, it is unnecessary to dwell more particularly upon it in this place.

In closing our remarks on food, it may be well to give a summary of the points most worthy of remembrance. First, the elements of air and water,—namely, oxygen, carbon, nitrogen, and hydrogen, form the only essential elements of organized matter, or in other words, of the animal and vegetable world. Secondly, that all the varied species of food, both animal and vegetable, may be classified chemically, as forming one of three alimentary principles; of which the first, and most important, is the *Albuminous*, having nitrogen for its base, and intended for the special reparation of the muscular tissue. The second, the *Oleaginous*, with carbon for its base, and serving chiefly for the supply of animal heat; and the third, the *Saccharine*, having also carbon for its base, but in less proportion than the oleaginous, the purposes of which are not so clearly ascertained, but evidently supplying the same material, in a modified degree, to man and animals, in warm climates; and also forming part of the mixed food of the temperate zone, and also probably furnishing the elements of some of the secretions. To the above must be added water, which enters largely into combination with all organized matter.

Of the four primary elements out of which the above alimentary principles are formed, it may be observed, that each seems destined to perform a separate or peculiar function in the animal economy: oxygen, for instance, is the well known supporter of combustion; while carbon is the combustible matter itself; nitrogen is the basis of the animal solids, as hydrogen is of the fluid parts. It must not be supposed, however, that any substance is composed wholly of one element; on the contrary, in every instance, they are the product of at least two, and generally of three or four.

It is well to know the basic relations of food in general, as we shall then be the better able to judge of the value and suitability of each article of diet as a source of nourishment.

CHAPTER II.

ON THE PHENOMENA OF DIGESTION AND ASSIMILATION.

The functions required for the support of life, may properly be considered under two heads: first, those necessary for the building up of the animal fabric; and secondly, those intended for the development of heat.

In accordance with this arrangement, we find the human body divided into two great cavities, completely isolated from each other, the abdomen, and thorax or chest. The one containing those organs which receive, and ultimately eliminate the food into blood; the other for the reception of the lungs and heart, the organs of respiration.

The process of digestion may be described briefly as follows: The first change takes place in the mouth, where the food, broken down by the teeth, becomes mixed with a certain portion of saliva. So far it may be considered mechanical; but the moment the food enters the stomach, chemical action begins.

The stomach possesses the property of secreting a solvent fluid, called the *gastric juice*. This has been shown by Dr. Prout to be analogous to muriatic or hydrochloric acid, of so great a strength, that it is not uncommon to find the stomach, in the dead subject, perforated by its action.*

The gastric juice acts gradually on so much of the food as is capable of solution, and separates from it a homogeneous gray-coloured fluid, called *chyme.* This is found to be, the albuminous portion of the food, *not altered in its chemical character,* but only softened and separated from the rest of the ingesta.

This chyme passes into the duodenum, the first portion of the intestinal canal, where it becomes mixed with the *bile,* an alkalescent fluid, which neutralizes the acidity of the gastric juice, and so depurates, as it were, the chyme; inasmuch as, after this, it assumes a more milky and uniform character, and becomes separated from the excrementitious portion of the food, which, uniting with the bile, forms the fæcal remains, afterwards to be expelled. The chyme now has given to it the name of *chyle.*

Over the whole surface of the intestinal tube are to be seen (with the aid of a microscope) the open mouths of transparent vessels, called *lacteals,* or milk vessels, which absorb or suck up, by capillary attraction, the chyle, in its passage through the intestines. From the lacteals, it is transmitted to a single vessel of larger size, called the *thoracic duct,* which ultimately empties itself into the large venous trunk, the *vena cava,* near its junction with the heart.

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* What the peculiar acid is, that is contained in the gastric juice, is not yet finally decided; Lehman found in the gastric juice of dogs, a crystallized salt of magnesia, which Liebig concludes to have been lactate of magnesia, and thence infers that it contains lactic acid.

The point at which the chyle first mixes with the blood, is when the latter, having made the whole cycle of the circulation, is on its return to the heart, to be purified and revivified by transmission through the lungs.

The lungs, situated in the chest, occupy the whole of that cavity, with the exception of the heart. They are composed entirely of a delicate membrane, which has given to it the form of cells, called *air-cells,* and which are evidently intended to present the largest amount of surface to the action of atmospheric air.

The blood, propelled from the right side of the heart into the lungs, is distributed over the surface of the air-cells in finely attenuated vessels, and thus, in the thinnest possible stratum, comes in contact with the air received into those organs during inspiration, from which it absorbs the oxygen, while at the same time it gives out carbonic acid gas, and humid particles.

During this change, the blood, which had entered the lungs of a dark purple colour, and loaded with carbonaceous matter, now assumes a bright scarlet hue, has become decarbonised and revivified, and again able to carry on the purposes of life. It enters the lungs from the right side of the heart, and returns from the lungs to the heart on the left side of that organ, having, in the mean time, become changed from venous to arterial blood.

Having now described the process of digestion to the point at which the new nutritive matter, the chyle, is changed into blood, and having next traced this fluid in its passage through the lungs, where it receives its last vitalising process, we will proceed to show how the blood becomes ultimately deposited in the body as animal matter, as well as abstracted from it when it has become effete.

This will include the phenomena of vital heat, and will ultimately be seen to have much to do with the cause of Gout.

CHAPTER III.

ON THE ULTIMATE CHANGE OF MATTER, OR METAMORPHOSIS OF TISSUE;—AND ON THE PHENOMENA OF VITAL HEAT.

From the left side of the heart, the new and purified blood is now propelled through the arterial system, to its ultimate ramifications, into vessels so minute as to appear like human hairs, and hence have received the name of *capillaries.* These capillary or hair like vessels of course pervade every part of the human frame, external and internal, and at their final terminations, all the phenomena of assimilation and decomposition are performed; and the generation of heat effected.

Although the body at all times preserves its identity and individuality, yet, during every moment of time, some atom of old material is being removed, whilst one of new is deposited in its place. The amount of this change of matter is materially influenced by the state of the individual; every act of volition, *every thought,* is accompanied by change of matter; all active exertion tends greatly to increase it, while, during a state of repose, the change is much lessened.

This "metamorphosis of tissue" is effected at the same time, and through the immediate agency of the phenomena, which regulate the production of animal heat. The capillary vessels bring to the spot required the atom of new blood: by the conducting medium of the nerves, and through the agency of the electric or nervous fluid,* the old atom is decomposed, heat evolved,† and the new one deposited in its place; while the elements of the old, forming new affinities, are taken up by the absorbent vessels of the part, and carried into the general circulation, to be ultimately removed by some one of the emunctories.

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* "A variety of circumstances lead us to the conclusion, that the *nervous influence* is analogous to, or depending on, if not identical with, the *electric* principle, or fluid, whatever that be;—that the nervous influence is generated, or secreted, in the cineritious (gray) part of the nervous system, and conducted by the medullary (white) part, the medullary part in the brain being the aggregation of the nerves from the frame, as—

1st. The contraction of muscle, by passing electricity along the nerve to it, either in the living body, or when dissected out.

2dly. The efficacy of electricity or galvanism, in restoring energy to the eye, or other parts, relaxed or inflamed.

3dly. The effect of electricity or galvanism, in producing digestion, when passed along the eighth pair of nerves.

4thly. Volition, is conducted along the nerves with a speed, equalled only by electricity.

5thly. The extrication of caloric, called animal heat, is analogous to the gradual action of a galvanic apparatus," &c. &c.—(Dr. Billing's '*First Principles of Medicine*,' p. 15.)

† Every one who has seen the beautiful voltaic experiments which are exhibited at the Polytechnic Institution, is aware that, at the point of union of the two currents of electricity, sparks are produced, with an evolution of heat (caloric) so intense, as to fuse metallic wire. In this case, the change of matter is going on in the galvanic trough, through the action of sulphuric acid on the zinc plates.

By what means it occurs, that one atom of blood should at once assume its peculiar character of muscular tissue, another of bone, brain, or other structure, is at present beyond the researches of physiology; but so it is.

Dr. Prout has very happily termed these phenomena "metamorphosis of tissue," intending we should understand thereby, not that the old atom is at once resolved into its final elements, but rather that it has entered into new combinations, one portion of it (as he believes) going to perform still higher duties in the animal economy, namely, to enter into the composition of brain and nervous matter,* whilst another, (the carbon†) is carried by the venous circulation, as purple blood to the lungs to be extricated in the form of carbonic acid gas; when the remainder, the nitrogenous or albuminous portion, in consequence of these abstractions, assumes the form of *urea,* ultimately intended to be eliminated through the kidneys and skin.

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* And thus produce, as Milton has it—

"Those animal spirits that from pure blood arise."

† "There is a perpetual deposition by the capillary system, of new matter, and decomposition of the old, all over the frame, influenced by the nerves; in this decomposition there is a continual disengagement of carbon, which mixes with the blood returning to the heart, at the time it changes from scarlet to purple; this decomposition being effected by the electric agency of the nerves, produces constant extrication of caloric; again, in the lungs this carbon is thrown off, and united with oxygen, during which caloric is again set free; so that we have in the lungs a charcoal fire con-

It is to this portion of the old material that I wish particularly to call the attention of my readers, as to a certain *abnormal compound of urea,* it is believed, the origin of gouty matter may be traced.

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stantly burning, and in the other parts a wood fire; the one producing carbonic acid gas, the other carbon; the food supplying through the circulation, the vegetable, or (what answers the same end) animal fuel, from which the charcoal is prepared which is burned in the lungs."—(Dr. Billing, *ut supra*, p. 19.)

CHAPTER IV.

ON THE PROXIMATE CAUSE OF GOUT.

UREA, as has just been mentioned, is formed from that portion of the old material, which served to sustain the animal fabric; that is, from the nitrogenous or albuminous portion of the food, the protein. Urea forms the characteristic element of the urine, and is chiefly abstracted from the system, in solution in that fluid.

It was formerly believed to be secreted in the kidnies themselves, but Dr. Prout has clearly shown that those organs merely serve the purpose of selecting, and filtering from the blood, those excrementitious matters (of which urea is one), that, having served their destined purpose in the animal economy, now require to be separated from it. According to the above writer, urea is one of the new matters formed by the change of affinities, which come into play at the moment of the destructive assimilation, or metamorphosis of tissue, in the capillary system.

In addition to urea there is found in human urine another substance, called *uric or lithic acid*, a compound of urea, which plays a very conspicuous part in most disorders connected with the inflammatory or phlogistic diathesis. In certain proportions, viz. one part only in thirty of urea, uric acid is supposed to be a normal product, but when appearing in larger quantity is always indicative of disordered action.*

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* According to the researches of Becquerel, the average proportion of uric acid and urea, excreted in twenty-four hours by a healthy man, is, in round numbers, 8 grains of uric acid to 225 of urea.

Were it not that it would be presumption in me to differ in opinion on such a subject with our most distinguished chemists, I should, from the peculiar composition of uric or lithic acid, particularly its insolubility, be disposed to consider it in all cases, rather the result of mal-assimilation, than as an essential ingredient of healthy urine. One would be the more disposed to this opinion, when we find it existing in most cases of a sthenic or inflammatory character, where, from disordered action, or a congestive state of system, an unusual quantity of nitrogenised matter is being separated; and it must not be forgotten, that, in civilized life, there are but few of us who do not consume a larger quantity of such food than nature requires. To place the matter beyond a doubt, the urine of the Hindoo, who abstains from animal food altogether, and that of the free denizen of the woods, who consumes nothing else, should be contrasted with the same secretion of civilized man.

I have just now (June 1848) met incidentally with a passage, in the last edition of Liebig's 'Animal Chemistry,' Part i, p. 146, which helps to corroborate this view of the subject. In speaking of the consequences of the want of oxygen on the changes of matter which ensue from the metamorphosis of tissue, he says:— "While in the normal (healthy) state of nutrition, of waste, and restoration, and of the supply of oxygen (or, in other words, of exercise), the nitrogen of the effete tissues *takes the form of urea*, Unlike urea, which is soluble in its own weight of water, uric acid *is insoluble in the human body*, requiring 10,000 times its weight of water to dissolve it (Prout), and, consequently, it is never found alone, or uncombined in the urine; but, on the contrary, always united with one or other of the alkaline salts, with which that fluid abounds. Thus, when combined with ammonia, its solubility is greatly increased, and it is generally in combination with this salt that in health it is discovered in the urine.

It has been stated that, in most disorders of an inflammatory type, uric acid is largely secreted; this is particularly the case in the gouty diathesis, but with this remarkable difference, that, whereas in other disorders of a similar character, it is found in combination with ammonia, *in gout it is united with soda*.

This salt, the *urate of soda*, which assumes the appearance of a white chalky powder, is almost as insoluble as lithic acid itself, and is therefore, very rarely discovered in the urine; but, on the contrary, is frequently found to be deposited in the joints and other parts in a *solid form:* and, indeed, those peculiar concretions which, in the

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and the sulphur of the bile that of sulphuric acid, which are discharged in the urine; when there is a deficiency of the oxygen necessary to the formation of these products, *uric acid*, a compound much richer in carbon than urea, *will be formed*, and a part of the sulphur will appear in the urine as cystic oxide."

gouty subject, are known by the name of *chalk stones*, are proved, by chemical analysis, to be composed of this substance.

If this, then, be the fact, and of which there can be no doubt, the exciting cause and morbid phenomena of gout, may, I think, be easily explained. In the first place, as has been mentioned already (and will be more fully shown when we come to speak of the predisposing causes of the complaint), uric acid is always abundantly secreted in the gouty diathesis; but from some cause not yet understood, this salt, instead of combining, as it usually does, with the ammonia of the metamorphosed tissue, and thus by its solubility readily passing through the kidnies, unites with the soda of the blood, and thereby forms a salt, very difficult of solution, indeed generally insoluble in the human fluids. Urate of soda, therefore, circulates in the system, suspended in the blood, and being a morbid, or abnormal product of a highly irritating nature, causes all those uneasy feelings, and anomalous sensations, so well known to the gouty subject.

As it increases in quantity, the system would naturally feel the importance of getting rid of a matter so injurious to its healthy action; and, not being able to expel it by either of the usual outlets, would adopt the only alternative left her, that of depositing it in some part of the body, *out of the way of her operations*, and farthest removed from the centre of vitality; and hence the extreme joints of the feet and hands are generally first affected.

Physiologists will have no difficulty in conceiving the immense irritation, that the deposition of a concrete earthy matter in the joints, must produce in parts peculiarly smooth and hard in texture, and intended by nature to have free motion on their articular surfaces.* Thus, no sooner is such deposit made, than inflammation of a peculiar kind is set up, when, after a longer or shorter period, the absorbent vessels of the part are stimulated to increased action, and again decompose it; it now once more enters into the circulation under new affinities, and becomes ultimately excreted in some more soluble form.

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* The articular surfaces of joints, composed of cartilage, are parts which, in their healthy state, as might *à priori* be supposed, are endowed with but little vital sensibility. In the large joints, intended to bear the weight of the body, and subjected to concussion, as in jumping, leaping, &c., much sensibility to pain would mar their usefulness. But it is a curious fact, that, when once such parts are subjected to inflammation, they become most acutely painful. Thus, in white swelling of the knee-joint, which at first is simple inflammation of the synovial, or articular surface of the joint, the pain is so acute as very soon, if not speedily relieved, to implicate the system at large in the mischief; when irritative, or hectic fever is set up, which soon terminates the life of the patient, unless the local cause of mischief is removed. This will serve to explain why an acute attack of gout, affecting any of the joints, should be so acutely painful.

But this is not all; it has been mentioned that the uric acid unites with soda instead of ammonia. This soda, can only have been obtained from the blood, in which fluid it exists united with phosphorus, (phosphate of soda) as an essential ingredient.* If it be so abstracted, the blood ceases to be in a normal state, and loses in part its important property of absorbing carbonic acid. This alone admits a flood of light to the eye of the reflective practitioner, as to the cause of many of the symptoms of gout. The soda of the blood also, in uniting with uric acid, parts from its phosphorus, which, in the form of phosphoric acid, must now be circulating free in the vital fluid, and how far this active agent may contribute towards the irritation existing in the system, may readily be conceived.

The formation then, of urate of soda in the animal organism, may be considered as originating the gouty diathesis; and its deposition in some one or other of the joints, as the proximate or exciting cause of the acute attack.

On the foregoing hypothesis, all the various phenomena of gout are easily explained, as, for instance, the general uneasy feelings before the acute paroxysm is fully formed; and it in no way exceeds many of the healthy actions of the human body, to suppose, that causes may occur

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* Liebig on the 'Chemistry of Food,' p. 112, and onwards.

occur, to prevent, or obstruct the deposit of the urate of soda in the joints, when such deposit was about to take place. This would produce all the symptoms attendant on retrocedent gout.

The appearance of chalk stones, marks the period of declining health. At first, the gouty matter, when deposited, was removed by the active interference of the absorbent vessels of the part; these have now ceased to perform their functions, it consequently accumulates from time to time, until the part actually assumes the form the name would signify.

Again, it is a well known fact, that, after a time, the nervous system becomes accustomed to the irritation of many morbid stimuli, and thus, as in the above instance, the acute symptoms would become less severe, the joints would gradually lose their sensibility, and sphere of motion; the last deposit of urate of soda would be thrown upon a previous one, instead of on the highly sensitive articular covering of the joint, and thus, a feeling of general uneasiness rather than acute pain would succeed. This might very properly be called a case of *chronic gout*.

The different symptoms would, of course, vary in the time of their appearance, in their intensity, and duration, according to the peculiar constitution of the patient in each individual case. In cases of primary gout, and where the patient was otherwise robust and healthy, of course the continuance of the acute attacks would be shorter, and the intervals of entire freedom from the complaint would be of longer duration, in consequence of the absorbent system possessing greater activity or vitality; and, therefore, from time to time, more completely removing all morbid matter. On the contrary, in cases of hereditary predisposition, and where the patient possesses but little vital power, the acute attacks would the sooner merge into continued chronic gout. Other circumstances would also possess great influence in modifying each individual case, of which, the mode of treatment and general regimen of the patient would not be the least.

Having, I trust, explained satisfactorily what is believed to be the proximate cause of gout, we will now proceed to investigate its primary and predisposing causes, which will form the subject of the following chapter.

CHAPTER V.

ON THE PRIMARY AND PREDISPOSING CAUSES OF GOUT.

GOUT has ever shown itself to be the offspring of luxury and riches; and whenever a country has increased in these particulars, there gout is sure to follow in their train. We accordingly find the Roman physicians, two thousand years ago, to have been as well acquainted with the complaint as ourselves, describing its various symptoms as accurately, and, in truth, treating the disease more successfully.

It does not, however, necessarily follow, that gout only attacks the indolent and luxurious; it may, not only be generated, that is, produced from some impropriety in diet or regimen, but it is particularly one of those disorders which are inherited, descending to us as an heir-loom, and thus verifying the decalogue where it says, "The sins of the fathers shall be visited on the children, even unto the third and fourth generation." In such cases we find, in spite of every attention to diet and regimen, a strong predisposition in the system to secrete the peculiar matter of gout, and in such, the difficulty of removing the gouty diathesis is much increased. But to show how much, even this hereditary predisposition is influenced by the surrounding circumstances of the individual, we find the disease very rarely showing itself among the poor and labouring-classes of the community.*

Although the privations of the poor be great therefore, still, their state possesses advantages to be envied by those above them, in being exempted from those complaints which owe their origin to indulgence in good living. In fact, the disorders of the working-classes differ materially from those of their more fortunate brethren, arising as they do, for the most part, from undue exposure to the elements, deficient food, accidents, the deleterious nature of their employments; and in the female, from the incidents connected with pregnancy and childbirth.

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* Providing the exciting cause be present, the poor are equally liable to gout as the rich; but the cases in which it occurs in the lower classes tends materially to verify the above remark. It is generally to be met with amongst butlers, coachmen, publicans, and butchers,—men who live well, and take but little exercise. But there is one trade particularly obnoxious to gout, where it cannot be ascribed to these causes alone, and that is the plumbers. This fact deserves investigation: it no doubt arises from the deleterious properties of the fumes of lead, predisposing to the formation of uric acid, or urate of soda, in the system. Painters cholic is a complaint in some respects resembling internal gout.

That gout is never met with in agricultural labourers, the class of men called navigators (employed in excavating earth), bricklayers labourers, or, indeed, in any class that is daily subjected to manual labour in the open air, is, I believe, a fact, almost without exception.

It has been observed, that an excessive secretion of lithic acid and its compounds accompanies many diseases, and is the source of others, as well as gout. Dr. Golding Bird, in his excellent treatise on Urinary Deposits, has given us, in a tabular form, the different states of system in which such excess occurs. This applies so completely to the disease under review, that I cannot do better than transcribe it, as it offers at one view the primary causes of the complaint. The words in italics are added to make the reference more complete.

A. Supply of nitrogen in the food, greater than is required for the reparation and supply of tissue, as in—	Excessive indulgence in animal food; or, the quantity of food remaining the same, with too little bodily exercise.
B. Supply of nitrogenised food not being in excess, but the digestive functions not able to assimilate it.	All the grades of dyspepsia, or stomach derangement.
C. The cutaneous outlet for nitrogenised excreta being obstructed, the kidney is called upon to compensate for this deficient function, *but is unable to effect it in gout, from the insoluble nature of the secretion.*	Perspiration arrested from morbid causes.
D. Local obstruction in the kidnies to the excretion of lithic acid.	As the granulated kidney secreting albuminous urine.

To enable us to trace the predisposing causes of gout in different cases, let us first inquire into the circumstances under which it makes its appearance in the individual, who shows no hereditary predisposition to the complaint. Such a man may be taken as the type of Class A.

All writers agree, that the subject of primary gout, is not originally the delicate and dyspeptic individual, but the robust and hearty; one who, had he been born among the labouring-classes of the community, would have been selected to fill the most athletic employments; the broad-shouldered and deep-chested, the muscular and strong. And we uniformly find such patients to have indulged either in the pleasures of the table, those of married life, or, from circumstances, have been indisposed to, or deprived of, active exertion.

Nor do we find in such cases that gout is preceded by derangement of the digestive organs.* Take, for instance, the country gentleman, fond of rural sports, as hunting, shooting, cricketing, &c., with a good appetite and strong digestive powers; his abundant exercise leads him to consume a large quantity of animal food, which is washed down with an equally liberal proportion of wine. After a longer or shorter period, he either becomes tired of his pursuits, feels indisposed to continue the same amount of active exercise, or, from some circumstance or another, is obliged to abandon it; *but his diet remains unchanged;** when, sooner or later, but rarely before middle age, he is suddenly attacked with his first fit of gout, in the midst of apparent good health.

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* Although any derangement of the digestive organs, arising either from intemperance, or improper diet, aggravates most seriously the gouty diathesis, and renders the cure much more difficult, still we find the first attack of gout frequently precedes, rather than succeeding to, such disorders. Primary gout would rather seem to originate dyspepsia than dyspepsia gout.

So long as loss kept pace with supply, all continued well; as with the working-man whose labour is constant; but now, his exercise being diminished, the change of matter in the system is less active: for one atom removed, two are deposited, Nature becomes impeded in her operations, and a superabundant supply of nitrogenised matter accumulates, which she cannot appropriate, and which, from the chemical nature of its constituents, cannot be converted into fat.*

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* It is a general remark of writers on Gout, that the subjects of this complaint have generally a large, and even voracious appetite. This fully accords with my experience. I have noticed it, not only in those whose digestive organs were sound, but also where there was much dyspepsia. This symptom, therefore, instead of being considered the index of good health, should rather be looked upon as one peculiar to the complaint, the indulging in which should be carefully guarded against by the patient. Dr. Copeland considers it as arising from a peculiar erethism, or increased organic sensibility of the mucous coat of the stomach. Howev c induced, it may be looked upon as one of the predisposing causes of the complaint.

If not carried off by the kidneys and skin, this matter continues to accumulate for a certain time with but little apparent irritation to the system, until, from its amount, the necessity of its removal becomes imperative; when, as a consequence, an abnormal quantity of lithic acid becomes secreted, and the commencement of disease ensues.

What form such disease will ultimately assume, depends on the constitutional predisposition of the patient,—on causes to which, in truth, we have not yet obtained a direct clue. In one, congestion of the liver will ensue; in another, the commencement of stone in the bladder; in a third, and the most frequent, apoplectic symptoms will begin to show themselves; in a fourth, the foundation is laid for water in the chest; whilst, in a fifth, if urate of soda should happen to be formed, an acute attack of gout will be the consequence. But these are not a tithe of the sequelæ that may follow from this one predisposing cause.

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* "Healthy individuals who spend much of their time in sleep, and in bodily and mental indolence, and who partake largely of fat and luxurious food, and of ale, and of other strong malt liquors, have, at all ages, a tendency to become corpulent. This tendency to become corpulent, however, is usually most remarkable about the middle period of life, when it is apt to terminate in gout, or some still more formidable disease; particularly if the individual persists in his indolent and luxurious habits."—PROUT '*On Stomach and Renal Diseases*,' p. 238.

But in gout, it is not necessary, in every case, that even the exercise of the individual should have been intermitted, before the primary attack takes place. I have known cases where, from only drinking abundantly of champagne overnight, gout has shown itself, for the first time, on the following morning, without producing any derangement of the stomach, and by simply altering the affinities, that is, by suspending the formation of urate of ammonia, and originating that of urate of soda.

Another class of men who will appropriately fall under this division of cases, are the civic dignitaries of London, and other corporate towns; many of whom, during the latter portion of their lives, indulge to excess in the pleasures of the table. Although such individuals rarely escape without more or less dyspepsia, still the cause of gout may rather be ascribed to repletion than mal-assimilation.

In all essential particulars, such is the mode of life of the individual in whom primary gout first shows itself; the predisposing cause of which may be described as being "a supply of nitrogen in the food, greater than is required for the reparation and supply of tissue."

Under the second division, B, where the supply of nitrogenous food is not in excess, but the digestive organs unable to assimilate it, may be classed many cases both of primary and hereditary gout.

The inheritance which the gouty parent leaves to his children may be described in a few words to be—*a constitution predisposed to the formation of lithic acid.* This predisposition, may or may not, coexist with derangement of the digestive organs. In some cases, where only one parent transmits the complaint, and both are otherwise healthy, we find the offspring, for the most part, as healthy as their parents, and in such cases, if the predisposing causes be avoided, gout may be altogether prevented; but if these be indulged in, then it will begin to show itself at an earlier age than is usual with primary gout. Again, although one parent only may transmit the complaint, yet, if either be disposed to scrofula or consumption, or whose constitution be otherwise unhealthy, then we shall find the children usually of a cachectic habit, with much dyspepsia, and having the lithic acid diathesis strongly developed. It is fortunate, however, that such results (especially if gout shows itself) generally prevent the appearance of phthisis.

Such as these, are generally the most difficult cases of gout which come under our notice. The stomach is morbidly irritable, and lithic, or lactic acid is abundantly secreted; not so much from too large a quantity of nitrogenised food, although much may be eaten, as from imperfect assimilation; the crude and ill-digested chyle, being converted into lithic acid instead of urea.

In addition to the above, there are many primary cases of gout, that appropriately arrange themselves under this division; namely, such as have their origin in too free an indulgence in venereal pleasures; as well as a large class of persons, chiefly in civic life, who err, not so much from taking too large a quantity of animal food, as from taking their meals at late and irregular hours.

There is nothing so utterly exhausting to the nervous system, as the first, of the two above-mentioned causes. The first succeeding feeling to a night's indulgence, is that of excessive exhaustion, accompanied by a craving for food; a hearty breakfast, with the accompaniment of ale or brandy, or both, is consumed; at dinner a double proportion of wine is drunk, whilst the supper is so ordered, as again to stimulate the jaded procreative powers to renewed action. Unless cut short by paralysis or marasmus, such a course of life may continue for many years, without apparently injuring the constitution; but at last, the stomach shows impaired function, not from the abundance of animal food eaten, or wine drunk, but from its organic nervous power being diminished in inordinately supplying other functions, it is at last unable to secrete healthy gastric juice,—a vicarious acid in lieu of this is formed, digestion becomes imperfectly performed, and mal-assimilation, with its accompaniment of lithic acid, eventually ensues. Nor is this all, for the kidnies, from the sympathy which exists between the urinary and generative organs, frequently suffer, and thus give rise to another cause of gout, the one ultimately to be described.

There is a host of men, whose lives are of infinite importance, not only to their families, but the community, comprising, as they do, the merchants, bankers, and leading men of the City of London, who, far above the mere gratification of the palate, are daily injuring their constitutions, by a too close and long-continued attention to business.

In illustration, let us take, as the representative of his class, the man, whose earlier years having been spent in a sedulous attention to the counting-house, has at last earned for himself a name in his firm, and the confidence of his fellow citizens. Residing at the west end of town, or in one of the suburban villages, he, after taking an early and hasty breakfast, leaves for the City, in some sort of conveyance for the sake of saving time, walking being out of the question; once at the desk, he remains there until six or seven o'clock, or only leaves it to attend 'Change: during all this time his mind is on the stretch, but the body remains inactive; he has no time even to lunch, and at last hastens home, by the same conveyance, to a full and late dinner. At three o'clock he was probably hungry, and could have well digested a meal; but now, the feeling of hunger is changed for that of exhaustion, he has fasted too long, and his food requires to be washed down with wine and brandy, to stimulate the jaded stomach to digestion; to accomplish which, the whole nervous energy of the system is required, sleep is consequently induced, in which the evening is more or less spent.

If such a course of life be continued for a long series of years, can we wonder that, under these circumstances, after a certain lapse of time, such a man should become dyspeptic or lethargic, or that, ere long, he is seized with paralysis, apoplexy, or gout? He may not, taking the twenty-four hours round, eat too much, but he does not duly divide the periods for taking his meals, whilst, at the same time, that the brain is being constantly overtasked, the important item of muscular exercise is entirely neglected.

Should such an individual have no predisposition to gout, he is ultimately likely to be carried off by disease of the heart or head; but if he has, then, sooner or later, derangement of the stomach supervenes, and his life is prolonged at the expense of his health, by the appearance of gout.

It is painful to see such lives so sacrificed; but admonition is in general useless, each arguing that, because during the vigour of life, he may have pursued the same course for years with apparent impunity, he may continue to do so to the end of the chapter.

The next division of causes where "the cutaneous outlet for nitrogenised excreta is obstructed," will be more properly considered when we come to speak of the functions of the skin: it will be sufficient to mention in this place, that a large portion of nitrogenised matter is excreted through the skin, and when this outlet is obstructed, it is thrown upon the kidneys in the form of lithic acid, and that whenever this, as in other cases, assumes the form of urate of soda instead of ammonia, then the elements of gout become formed.

Gout, arising from "local obstruction in the kidneys, to the excretion of lithic acid," is rare, and only to be looked upon as a symptom of the more important disease. It is a symptom, however, which should never be neglected, as being among the first to indicate the impending mischief; at the same time it should carefully be distinguished from idiopathic gout. I have known cases of albuminous kidney overlooked for two and three years, where rheumatic gout was the more prominent feature of the case, and thus the time for treating the real. disease was allowed to pass by unemployed.*

Thus, in reviewing the causes of gout, we see that luxury and civilization bring in their train evils unknown to poor and savage life; yet, not necessarily so, if mankind would but remember the laws under which infinite wisdom has thought fit to fix their being. A sound mind is dependant on a healthy state of body, and that again on temperance and exercise.

From what has been already said, it may easily be seen that something more than physic is required for the cure of many of the disorders of every-day life; the forgetting which, is the prevailing error of the present practice of medicine. In large cities, many causes combine to induce both patient and practitioner to trust to it alone, the mode of remuneration of the latter† not being the least. Whilst to the full-employed fashionable physician, the writing a prescription is a much easier task than watching the effect of such potent remedies as those hereafter to be described, which, judiciously applied, are capable of effecting the most unlooked for results. In large cities too, there are wanting two, most important aids to the recovery of health—air and exercise—which in them cannot be obtained.

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* An instructive case of this kind will be given in the sequel.

† Every honorable mind engaged in general practice, by which is meant those who look for their remuneration from the medicine prescribed, instead of fees (for in other respects we are all in general practice), must continually find his conscience and pocket, at variance with each other. In many cases, it is the regimen and diet of the patient that chiefly require to be attended to; in others, the medicine actually needed, might be comprised in a single pill, instead of the three draughts, with pills or powders, daily prescribed. In a third class, including children, and those where the stomach is morbidly irritable, it is absolutely unjust, to force

down a quantity of nauseous and unnecessary medicine; but in all these cases, so inveterate, from long continuance, has the habit become, of prescribing a larger quantity of medicine than is required, that, were the practitioner to act conscientiously, the patient would feel himself neglected, and he remain unremunerated.

There is another, and very serious effect produced by the practice, in the mind of the medical man himself, who, from habit, is led unconsciously to place his whole reliance upon physic, and thereby neglecting that part of the treatment, that might occupy time, and for which he would be unable to charge. It is this, that brings into vogue the hydropathist, who renounces medicine altogether, as well as the homœopathist, with whom it is looked upon as the mere *placebo*.

CHAPTER VI.

ON THE FUNCTIONS OF THE SKIN.

THE functions of the skin have not received at the hands of the profession, the attention their importance demands. The true skin, is a thick, highly vascular, and acutely sensitive membrane, enveloping the whole body, binding its various parts together, and defending them from the influence of the atmosphere. It is also the medium of communication with the world around us, by the sense of touch, and the universal organ of sensation, by which our feelings admonish us against impending evil. It also, in every part, gives egress and ingress to exhalent and absorbent vessels, through the first of which is excreted, all the ultimate elements of organized matter, as hydrogen, both in a gaseous state and in the form of water; as also united to sulphur, as sulphuretted hydrogen. Nitrogen, with many of its compounds, and carbon, both pure and in the form of carbonic acid gas; whilst, by its absorbent vessels, oxygen, as well as aqueous vapour, is imbibed. In consequence of this latter function, the action of the skin is closely allied to that of the lungs; indeed, it forms an important auxiliary to them; and in some diseases of those organs, life is continued for a time, in a great measure, by the absorption of oxygen through the skin.

The skin is amply supplied with nerves and blood-vessels; and by the absorption of oxygen, its capillaries are stimulated to increased action, thereby giving tonicity to the pores, and thus preventing malaria and other noxious matters from being absorbed. Moreover, in certain disorders, various morbid secretions escape through the skin; thus, many persons are subject to a peculiar acid perspiration, arising from imperfect digestion, whilst a copious deposit of calcareous matter has been seen deposited on the bed-clothes, after using the Thermaclin.*

The exhalent vessels of the skin act also as regulators of bodily heat; thus, when much exercise is taken, and consequently, from increased change of matter, more heat is generated than is required, perspiration breaks out, by the evaporation of which, the superabundant caloric is dissipated. On the other hand, when too little is made, the sensation of cold upon the surface warns us either to put on additional clothing, raise the temperature of our apartment, or take more exercise.

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* A description of the Thermaclin is given at p. 48.

The sentient extremities of the cutaneous nerves, serve as electric telegraphs to the brain, informing the sensorium of everything that takes place from without, obnoxious to the welfare of the body; and thus, standing as sentinels to the open pores, the moment they come in contact with malaria, or other poisonous influence, they close themselves, and a universal rigor or shivering is the signal that mischief has ensued. In every case, where the closure of these vessels is general and complete, the accession of disease is marked by the occurrence of this symptom, which, to the medical man, is always an important one, and too often indicative of danger.

Independent of the papable perspiration, which is both seen and felt, and chiefly serves to regulate animal heat, there is another impalpable secretion, unseen and not felt, and therefore not appreciated, but of equal, if not of greater importance than the other. It is constantly in operation, summer and winter, by day and night, and amounts to the enormous quantity of two pounds in weight in twenty-four hours.

"It has been ascertained beyond a doubt, by a series of careful observations made by Seguin and others, that in that space of time (24 hours) a quantity of matter is exhaled from the skin, equal to 33 ounces in weight; and, moreover, that it proceeds from that insensible perspiration, of which we have no cognisance. The quantity of urine made in a similar period, averages from 30 to 40 ounces, so that it will be seen to be nearly equal in amount to the secretion of the kidnies.

"Nor must it be supposed that this matter is mere aqueous vapour, as Anselmino, who afterwards examined it, found that in the above quantity of 33 ounces, or 15840 grains, there existed of *

"Organic matter	107.47	grains.
Saline matters	11.92	„
Water, and volatile matter . .	15720.61	„
	15840.	

Dr. Golding Bird, from whose excellent work on 'Urinary Deposits' the above quotation is made, proceeds to observe, that "this organic matter contains much *nitrogen;* and I have more than once detected in it, a body resembling urea.

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* According to Anselmino, as quoted by Tiedemann, and by Berzelius, the dry residue obtained by evaporating human sweat, contains—

"Saline matters, chiefly calcareous, and insoluble in water and in alcohol	2.
Substances soluble in water, but insoluble in alcohol, comprising animal matter and sulphuric salts . .	21.
Common salt, and extractive matter soluble in dilute alcohol	48.
Extractive matter lactic acid, and lactates, soluble in anhydrous alcohol	29.
	100.

(BRANDE'S '*Manual of Chemistry,*' p. 1199.)

Berzelius states that osmazone, another nitrogenised substance, is an ingredient in the perspired fluid. It may safely be assumed, that, where the skin is unable to perform its functions, the 107·47 grains of organic matter, which then lose their proper outlet, appear wholly, or partly in the urine, in the state of urate of ammonia."

From the above, it will be seen, how intimate and vicarious are the functions of the lungs, the kidnies, and skin; and that, of the old decomposed matter, momentarily being separated from the system, one, or more elements, are destined to be excreted by each of these organs; and that when, from any cause, either ceases to perform its healthy function, increased duty is immediately thrown on one, or both of the remaining ones.

Thus is explained how gout, in subjects predisposed to the complaint, will sometimes appear as the consequence of simply taking cold. So long as the cutaneous outlet for the nitrogenised excreta remained open, the health continued good, but these being closed, this matter, which in other subjects would have been got rid of in the form of urate of ammonia (as just stated), in the arthritic individual, assumes that of urate of soda; and thus, from its insoluble character, continues either suspended in the circulating fluids, producing various morbid sensations, or, is at once precipitated on some one, or other of the joints in the form of gout. In such a case, it may be clearly seen, that restoring the insensible perspiration, which by the thermaclin is effected with the greatest ease, must at once, by withdrawing the morbid matter, relieve the complaint.

Besides the sympathetic action which subsists between the functions of the lungs, kidneys, and skin, there is another, of an equally important character, subsisting between the skin, and the whole mucous membrane lining the fauces, and alimentary canal, indeed, the latter can only be considered as a modification of the external skin.

This explains to us the rationale of common cold, sore throat, some varieties of diarrhœa and dysentery, as well as other disorders. If, by the impulsion of cold air (or draught of air) on some part of the external skin, the insensible perspiration be arrested, that portion of the mucous membrane in more immediate sympathy with it, (as, for instance, the neck with the throat), suffers from the effect, in a greater or less degree. At first, the secretion of the part ceases, and the throat appears dry, but, after a little while, it is poured out in more abundant quantity, as well as altered in character, and thus gives rise to catarrh, sore throat, &c., according to the part of the mucous membrane, which may become implicated: or, if the windpipe be affected, inflammation of the air-passages or lungs may ensue. In this way, the origin of a vast variety of complaints may be explained.

CHAPTER VII.

ON THE TREATMENT OF GOUT.

On reviewing the proximate causes of gout, as laid down in the preceding pages, it will not appear surprising, that the complaint should ever have proved so intractible of cure, by the ordinary mode of treatment. We have seen, that the phenomena originate in the formation of an insoluble salt in the system, which the kidneys refuse to excrete, and which cannot find an outlet, by means of the alimentary canal.

There is but one other way, by which its escape is possible; namely, through the skin, and that this is the direct and proper outlet by which it should be removed, is strongly corroborated by the fact, that every writer on gout, guided by experience alone, and without knowing the modus operandi of the remedy, has insisted on the importance of inducing free perspiration, whatever might be his mode of treatment in other respects.

It is to the skin, then, we must look as to the emunctory, through which, gouty matter can alone be excreted; but the various kinds of baths at present in use, are all of too temporary a character, to produce any permanently good effect. It has been already mentioned, that it is not mere aqueous vapour, that escapes through the pores of the skin, but matters of much higher importance. It is true, that at the commencement of diaphoresis, the secretion is chiefly of that character, and hence it is that, by the means usually employed, we have missed the more valuable therapeutic effects resulting from it.

Such being the case, the question arises, by what other means can we produce and sustain, a full and free diaphoresis? That it can be by heat alone, is self-evident, and that such heat must be produced by mechanical means, is equally certain. This has led to the introduction of the thermaclin; which we will now proceed to describe.

The *Thermaclin* is simply a heated bed, air-tight, in which the patient is surrounded by an atmosphere, hotter than his blood; and the temperature of which, can be raised or lowered at pleasure. In some complaints, it may be used in its simple form, merely for the purpose of producing free diaphoresis; in others, the atmosphere is impregnated by medicinal substances, in a gaseous form, and affords a most valuable means of introducing into the system, any medicine capable of volatilization.

By these means, we have effects produced, that cannot be imitated by any kind of warm water or vapour apparatus in which fluid is absorbed as soon as generated,* and in which perspiration cannot be carried beyond a certain point. There are, also, I am persuaded, very beneficial effects produced from the positive electricity of the dry atmosphere, which effects are certainly wanting where water is made the medium for the transmission of heat. After the patient has been for a short time in the thermaclin, perspiration begins to flow freely, when all uneasiness (if any existed) from the sensation of excessive heat ceases, and the individual lies at his ease, perspiring from every pore.

When the body has absorbed sufficient caloric, a draught of cold water will not only accelerate, but increase diaphoresis, and may be taken with perfect impunity; indeed, by it we have a powerful auxiliary for depurating the blood, as every drop that is swallowed, before it reappears on the surface, must have traversed the circulation, and so brings to the surface an increased quantity of excrementitious matter.

There are two points in which the thermaclin has greatly the advantage of its prototype, the Roman thermæ. In the first place, the patient's head beingexposed, he is enabled to breath the cool atmosphere of the room (or cold if required) instead of the heated and rarified one of the bed; and is thereby enabled to bear the process longer than he otherwise would. In the second place, the heated and confined atmosphere of the thermaclin, stimulating, as it does, to greater activity, the absorbent system, enables us to administer through these vessels some of our most potent remedies in a gaseous form. It is well known that this mode of exhibiting active medicine is less irritating to the system than by the mouth. Hitherto the practice has been chiefly confined to the absorption of mercury and sulphur, and even these but seldom.

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* Cases have occurred in which the individual, after only one hour of total abstinence, has been found, by weighing, to have increased a pound in weight; and on passing a pint of fluid at the end of the hour, again recovered the original weight. This pound of fluid must, therefore, have been imbibed from without.—(See Dr. PROUT on '*Stomach and Renal Diseases*,' p. 110, *note*.)

The effects of the thermaclin vary with the mode of its administration; whether medicated or simple, on its duration and temperature. It is possible, by its means, to reduce the absolute weight of the body three, four, or five pounds each time it is used; whilst it is equally possible to render it both tonic and stimulating. That it is highly depurative and purifying, its effects in various disorders sufficiently testify.

This, then, is the new therapeutic remedy which I take leave to introduce to the profession. Our objects hitherto, in inducing perspiration, have been too limited, and the duration much too short. We have looked upon it as simply the escape of so much aqueous vapour, whereas, this is only the first and most simple of the phenomena induced; it has already been shown, in considering the functions of the skin, that it excretes, especially when stimulated to increased action, a variety of matters, for the exit of which, it is the only proper emunctory; and some of which can be got rid of in no other way. This is a view of the subject widely different from that, usually entertained; and I am persuaded, the more it is studied, the more its importance will be admitted.

But we have not yet completed the process necessary in using the thermaclin, nor have yet shown the full analogy it bears to the Roman thermæ. We have brought the patient to a state in which his pores are all open, and in which exposure to the atmosphere, would be sure to produce some one of the various effects of taking cold. There are three means available for obviating such effect:—first, anointing the body generally with some stimulating oleaginous liniment; secondly, letting him cool down gradually, but completely, in a warm atmosphere; and, thirdly, by placing him at once under the cold shower-bath.

In chronic complaints, when it is desirable to repeat the process, or where the object is, to withdraw from the system morbid matter, it is necessary to let the patient cool down gradually, for which purpose he should be transferred from the thermaclin to bed, when it is better to use the former in the evening, as by this means he is not confined to the latter during the day; and in this way its use may be continued for months. In other cases, where it may not be desirable to repeat the process, the anointing the body will be a sufficient safeguard against cold.

But in a great many cases, where there is no danger of repelling morbid matter, and where the object is to improve the general health by giving tonicity to the secerning system, by the absorption of all superfluous matter, the best way is, for the thermaclin to be given in the morning, and for the patient immediately to step from it under the shower-bath.

This mode of bathing, I believe, I may claim the merit of having introduced into this country, although it is commonly used in Russia, and, as will be seen, was formerly practised at Rome.

This, which strikes the imagination as being so bold and dangerous a proceeding, is, in truth, less so than using the shower-bath in the ordinary way on rising in the morning; and it is described by all who have experienced its effects, as being most refreshing. When it is remembered, that the body has imbibed an unusual quantity of caloric, and that it is this only which is dissipated, the above statement will be credited. In fact, in all cases where the shower-bath is used after the thermaclin, the individual requires, and will bear, a greater quantity of water than when the shower-bath is used alone; and even then, the excitement is so strong, as generally to renew the perspiration *after* the affusion of the cold water.

Long experience has convinced me, that this mode of bathing is most refreshing and invigorating; but persons in general think only of the sudden change from heat to cold, and argue, that if the shower-bath in the ordinary way to them feels so cold, how much more so must it feel, to those in a high state of perspiration?

On the Treatment of the Acute Attack.

Having ascertained the essential principle of gout,—the abnormal chemical changes which take place in the vital fluids, as also the direct, and only emunctory through which, the gouty matter is capable of being withdrawn from the system,—having also obtained the means of commanding and sustaining a continued diaphoresis,—much of the difficulty in the treatment is overcome. We have accumulated facts on which to reason, whilst the theory deduced from these facts, practice proves to be correct.

But it is too much to expect that all cases of gout will succumb to the thermaclin in its simple form. Having, however, obtained by it a key to the treatment, the idea almost naturally suggested itself, that gout, being a disease which, if not interfered with, affects the superficial parts only, and further, that through the skin alone could the morbid matter be withdrawn, it was more than probable that this was the proper medium through which our remedies might be made to act directly on the parts affected. Accordingly, I have, for many years, been engaged in the inquiry as to what, if introduced into the thermaclin in a volatile form, would best assist its operation; and the result of my experience is, that in general, in chronic cases, iodine is the most effective; in the acute, camphor and benzoic acid; and in rheumatic gout, sulphur. Occasionally, however, in peculiar cases, I have found other substances very useful, particularly arnica and briony.

We will now proceed to describe the treatment of the acute attack, in which the first object is, the removal of the patient's present suffering, which appears to be caused by the last deposit of gouty matter on the joint or joints affected. To do this effectually, by means of the thermaclin, it is of primary importance that we accurately ascertain the existing state of his health, to see whether there be any visceral disease, and especially if there is any general inflammatory action of the system present.

In all cases, it will be necessary to prepare patients for the use of the thermaclin, by exhibiting some kind of aperient medicine; in general, a few grains of blue pill or of calomel over night, with a saline purgative in the morning, will be sufficient; but in others, the preparation will require a longer time. No general practice can, therefore, be laid down that is applicable to every case.

If, in addition to the usual arthritic inflammation in the part affected, there be a sthenic diathesis present, characterised by a full, quick, and hard pulse, venesection at the arm is a prerequisite essentially necessary; long experience having taught me, that to attempt to use the thermaclin, in such a state, is useless. The inflammatory state of the system here spoken of, is not like that of serous membranes, as of the lungs, pleura, or abdominal tissues; there is no *one* organ that can be said to be inflamed; it may, in fact, be better described as a sthenic, phlogistic, or inflammatory state of the vascular system in general; and it may also be observed, that one free bleeding will, in general, be sufficient, the amount depending on the age, and constitution of the patient, and particularly on its effect on the pulse.

But in the majority of cases this state of system will not be found to exist; in such, having previously emptied the bowels by a suitable aperient, and abstinence from solid food having been enjoined, for at least five hours, the patient is placed in an alkaline warm bath, at 98° F., where the skin is well cleansed with soap. This, not only answers the purpose of ablution, but prepares the skin for diaphoresis, whilst the absorption of the alkali into the blood, has an important and beneficial effect.

The patient may remain in the water-bath half an hour, and it is here, also, that the bleeding, when required, can be best performed; the blood flowing more freely from the heated medium in which the patient is resting. He is then dried and removed from the bath to the thermaclin, the temperature of which will depend on the peculiar symptoms present. After a longer or shorter period, profuse perspiration will appear, when, if the apartment be small, or the atmosphere mild, the door and windows may be thrown open, and the patient be supplied with copious draughts of cold water, which, instead of checking, will materially facilitate the flow of perspiration.

After a period of time, varying in duration from one to three hours, he may be taken out, wiped dry, and placed in a warm bed, and subsequently have given him some light nourishment, in a fluid form, and then be left to his repose.

The first thermaclin, is always attended with less easy feelings than any succeeding one; there is, at first, greater difficulty in inducing free perspiration; the exhalent vessels also, throw out a more offensive odour than afterwards, which, in some cases, is indeed very powerful, and affords a criterion of the state of the patient's health.

In the morning, it will in general be found, that he has passed a very comfortable night; that the pain and redness of the limb are much diminished, and that he can now bear pressure with a degree of impunity, compared with the preceding day. He is now to be placed again in the thermaclin, which he will find more pleasant than at first. The perspiration will flow with greater freedom, and the peculiar odour above mentioned will be less offensive.

On the termination of the second thermaclin, all the symptoms will be most materially mitigated; pain will have ceased, and the swelling of the limb be much diminished. By this time he will, in general, be able to walk about his room; but as the cutaneous pores are open, he had better not quit it. His diet should be of a light description, avoiding animal food.

When the thermaclin should be again repeated, must depend on the peculiar circumstances of each case; usually three or four repetitions of it, will be found sufficient to remove all traces of the recent attack; by which time, if the constitution be good, and the gouty disposition of not very long standing, even the stiffness will also have greatly disappeared.

What medicine may be necessary, must depend on the peculiar symptoms present in each case, and particularly on the state of the urine. If there is much deposition of lithic acid in that fluid, a saline, containing citrate of ammonia, may be exhibited with advantage; in some cases, a few grains of Dover's powder will be useful, and in others a saline aperient will be required, but on no account colchicum.

I would here, also, enter my protest against the use of any cold application in the acute gouty paroxysm; but when such is absolutely removed, and every symptom of the complaint has vanished, then the use of the shower-bath (which, however, is very different to the continued application of cold) will, in most cases, be found highly beneficial. It gives tone to the secerning system, accelerates change of matter, and, in this way, not only improves the general health, but greatly assists in removing the gouty diathesis.

When, therefore, the pain, redness, and tumefaction have all entirely subsided, the patient may take his last thermaclin, (which, for this purpose, should be given in the morning,) and on getting out of it, he may, without loss of time, immediately step under the shower-bath; after which, he must be well rubbed down with coarse towels, and dress quickly.

The process is now completed; the patient may expose himself to the open air with perfect safety, and it is desirable he should take some exercise. He may then set down to a hearty breakfast, to compensate for his previous abstinence.

It is unnecessary to compare the advantages attending this mode of treatment, with that usually adopted; they are, indeed, sufficiently apparent. At the best, under the old system, the attack is only mitigated, not cured; whilst the patient had almost always to submit to long confinement and protracted pain. In this, the pain is reduced to the shortest duration, whilst the confinement is entirely done away with.

But there is one advantage above all in the use of the thermaclin, that is of the greatest importance,—namely, *the whole process tends most materially to improve the general health.* The various secretions are purified, the blood depurated, whilst the gouty matter *is actually abstracted from the system*, not repelled; whilst the constitution, in the mean time, has not been injured by any drastic medicine.

There is one question that may arise in the reader's mind, which it will be well at once to answer,—viz., have the benefits here described, as arising from the use of the thermaclin, been at all exaggerated? I can truly say they have not. At least, I can conscientiously add, that I have never yet met with an acute attack of gout, the pain of which, has not been promptly and effectually relieved. I have had patients come to me so enfeebled, and in so much pain, as to require the aid of two persons to get them into the house, and such have left me in two, three, and four days, perfectly free from all gout, and able to walk with freedom. I have also had those, where, from their inability to be moved, it became necessary to attend at their own homes, with whom the relief has been equally prompt and decided.

I do not say that cases may not occur, where the cure may be less prompt: those I have named have been such, as where the attack has certainly been, of the most acute and painful character, but, where the vital stamina has remained uninjured. In every case the pain has been speedily relieved; but the subsequent restoration to health has, of course, depended, not only on the age of the patient, the duration of the complaint, the state of the constitution, but also, whether they have been injured by intemperate living, the use of colchicum, or from other causes.

The celerity with which pain is relieved, may, therefore, be considered as a prominent feature in the new mode of treatment. It is true that, by the use of cold, as plunging the limb into a pail of cold water, pain may be almost instantly relieved, but subsequently with certain and infinite mischief to the constitution. Many old patients can tell, what sufferings they have endured from the retrocession of gout; and how necessary it has been, in order to relieve their sufferings, to bring back the acute paroxysm. Nature herself adopts this mode of getting rid of the morbid matter; not being able to remove it from the system, she deposits it in a concentrated form, in a part, the furthest removed from the centre of life, and where it exists only as a local irritant. In using any repellent remedies, therefore, we are thwarting nature's operations; and either drive the morbid matter to a vital part, or throw it back on the system at large, to reappear, with double force, on a future occasion.

It is universally admitted by those who are personally, or practically acquainted with gout, that the use of colchicum or hellebore, (one or other of which is the basis of all gout medicines,) although producing present relief from pain, is ultimately injurious to the constitution; in lessening nervous sensibility, irritating the mucous membrane of the alimentary canal, impairing the functions of digestion, and hastening the return of the paroxysm. Nevertheless, it is impossible for a medical man, called in at the height of an acute attack of gout, and, *having no other means in his possession,* for relieving his patient's present suffering, to resist prescribing these remedies.

It is here the benefit to be derived from the present mode of treatment, stands in such advantageous contrast to the old; in affording equally prompt and more complete relief; in retarding, instead of hastening, future attacks; in leaving the system renewed in health and strength; and, moreover, if had recourse to sufficiently early, in averting altogether a threatened attack.

CHAPTER VIII.

ON THE TREATMENT OF CHRONIC GOUT; AND REMOVAL OF THE GOUTY DIATHESIS.

Chronic gout may occur primarily in feeble constitutions, from their not having power to develope the acute paroxysm; or, as the sequence to that form of the complaint.

In the former case, conjointly with the most close attention to the general state of health, to the functions of the stomach, liver, kidneys, and alimentary canal, the use of the thermaclin will be found of essential service, in withdrawing from the system gouty matter, and consequently, leaving the practitioner less to contend with, in his attempts to improve the general health.

When chronic gout follows on the acute paroxysm, it is generally in individuals who have been long subject to the complaint, and where the gouty matter has not been wholly absorbed from the previous attacks; in consequence of which, accumulation has taken place from time to time, narrowing the sphere of motion in the affected joints, and at the same time rendering them morbidly sensitive. In either case, the treatment of chronic gout has so immediate a reference to that for the removal of the gouty diathesis, that it may, with great propriety, be comprehended under the same chapter.

It must not be supposed, that when the acute gouty paroxysm has been relieved, in the manner above described, that the tendency to the disorder is corrected. The essential principle of gout is too firmly fixed in the constitution, to be thus easily and permanently removed. It is true, that if the patient adheres subsequently to a proper regimen, the period intervening, previous to the next attack, will be protracted, and the health in the mean time much improved.

It must also be a great consolation to a large proportion of individuals suffering from gout, to those whose avocations will not permit them to devote sufficient time to the radical cure, equally with them who do not choose to be deprived of their accustomed luxuries; it must, I say, be a great satisfaction to such to be told, that by the regular use of the thermaclin, periodically, that is to say, for a week, every three or four months, at the time *they are free from an attack*, they may, in most cases, keep the enemy at bay; and thus continue free from the complaint for years. We are most of us so much governed by circumstances, that many will be glad thus to compound for its absence, particularly when, by this means, they are not injuring (as by the use of colchicum) their general health. Nevertheless, to those who value life, and desire to prolong it, and who have, moreover, time at their disposal, I would always recommend submission to the radical cure; that is to say, the removal of the gouty diathesis.

To say nothing of the hereditary predisposition, the morbid habit the system has acquired of secreting gouty matter, is so inveterate, that urate of soda will, in general, under the most favorable circumstances, continue to be formed, for some time to come, as one of the products of the metamorphosis of tissue. This disposition to the formation of urate of soda, can only be gradually subdued, by the substitution of new, and more healthy matter; besides which, in old cases, the urate of soda removed during the acute attack (by the use of the thermaclin), was only the portion most recently deposited, while that formed during previous gouty paroxysms, still remains in the system.

Thus, it will be seen, that completely to remove the gouty diathesis, requires time and perseverance; from six to eight or twelve months should be wholly devoted to the purpose; and during this period, the patient should divest himself, as much as possible, of all uneasiness of mind, and every cause of irritation, and sit down determined to get well, and enjoy himself; which he certainly may do, if his enjoyments are those of a rational being. Some few imagined luxuries (but real evils) may, perhaps, have to be dispensed with; but the feeling, daily increasing, of renewed health, will amply compensate for these trivial privations.

If we call to mind what has been stated in a former part of this treatise, as being the predisposing, and proximate causes of gout, the radical cure of the complaint, will resolve itself into the two following problems :—First, the removal from the system of all gouty matter, namely, lithic acid and its compounds; and, secondly, the correcting the morbid propensity which the system has acquired, of secreting these abnormal products. The means to be made use of for effecting these objects, may be comprehended under the following heads:—The use of the thermaclin, cold bathing, medicine, appropriate diet, exercise, and pure air.

The effects of the thermaclin vary so much with its duration, the frequency of its repetition, and whether medicated or simple, that it is impossible to lay down rules for its employment applicable to every case. When I state that we have the power, by its means, of reducing the absolute weight of the body four, or five pounds each time it is used, I need not say it is a powerful antiphlogistic remedy; that it is highly deobstruent and purifying, is evinced, by the fætid matter it withdraws from the system; and that it is eminently tonic and bracing, when so desired to be, is proved by the improved health and strength of patients subjected to its use.

In every variety of gout, the thermaclin will be found to be eminently useful, but in every case will require to be modified in the above particulars, as to the frequency of its use, its duration, and to its compound or simple character. Moreover, it must not be left off because all symptoms of the complaint may have ceased, but be continued at stated intervals, until all disposition to secrete lithic acid has disappeared from the system.

Whenever the shower-bath is admissible, its daily use, independent of the thermaclin, will be found very advantageous; in exciting the capillary circulation, promoting change of matter, and giving tone to the system. It should always be accompanied by long continued friction, with coarse towels, or the flesh-brush, with the aid of an assistant.

Medicine.—As the only *so called* specific for gout, colchicum, is entirely excluded from this method of treatment, our only object in prescribing for the complaint should be to improve the general health. In many cases we shall have to contend with all the phases of dyspepsia; in such, one of the vegetable bitters, or the mineral acids, given in appropriate doses two hours *before* a meal; and a few grains of the bicarbonate of potash, administered when acidity is about to commence *after* a meal, (the time of which will be found to vary from one hour, to four or five), will be very beneficial. Where there is tenderness at the epigastrium, a few leeches occasionally will do much good.

In other cases, and the more frequent with patients about the middle period of life, we shall find the sthenic diathesis apparent in the increasing corpulency of the individual; here, the abnormal matter of gout is being produced, by too great indulgence in the pleasures of the table; these must, therefore, be curtailed, or changed as to character; purgatives freely administered; in addition to which, I have found the iodide of potash taken freely, and continued for some length of time, with two or three grains of blue pill at night, assist materially in reducing size, and improving the secretions.

Thus, in every case, the treatment must have reference to the general state of health of the individual, and but few will be found, that are not accompanied with some functional derangement, of one or more of the abdominal viscera, or by a congested state of the vascular system in general. These various affections must therefore be treated, according to the known rules of art.

Diet.—Although the observations of all luxurious nations, from the Romans to the present time, agree in stating a full, and generous diet to be one of the chief primary causes of gout; yet, it is only recently, that science has discovered the precise mode in which, under such circumstances, the abnormal chemical affinities, come into play. Now that we know, that it is chiefly nitrogenous food that predisposes to gout, we can, with the greater assurance, limit its use. If we turn to the chapter on the chemical constituents of food, we see that animal diet is of this description; such food must, therefore, be taken very sparingly; ever remembering, that it is the abuse, and not its use, that is so injurious, and that the quantity should be apportioned to the waste of tissue, caused by our avocations. If, for instance, our employment be laborious, more especially if in the open air, that, then, more is required; on the contrary, if mental or sedentary, a less quantity is necessary.

In this view of the subject, it is highly important for the gouty subject, that his food be of the plainest description; that it may not

> "Urge, against its wiser will, the jaded appetite;"

and thus stimulate it to take more, from the viands being highly seasoned, or compounded of various savoury ingredients, instead of being of a simple character.

He will do well to select his diet, from the oleaginous, and particularly the saccharine principles, rather than from the albuminous, and on such diet he may fare most sumptuously; light soups, bread, the various ripe and dried fruits, with vegetables of all sorts, are within his reach, with an occasional dinner of fish or meat. The list of esculents, here given, is so large, that no one but the Englishman, would complain of being deprived of his heavy meal of animal food.*

If gouty patients will consent thus to live, and occasionally make use of the thermaclin, they may rest assured, that when once the gouty diathesis is overcome, (that is, the disposition to secrete urate of soda), they need fear no return of gout.

The above is given as the style of living, for all patients whose digestive organs are sound; but unfortunately a large proportion will be found, the functions of whose stomachs are weakened or deranged; and where, for the reasons given in

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* In Germany there is a diet used for gout, which is said to be highly successful, called the "Grape Cure;" which consists in limiting the food, to brown bread and grapes only, for a certain period of time.

p. 4, meat and bread are almost the only articles that can be completely assimilated. Here we have but a choice of evils; and it is necessary that in avoiding Scylla, we steer clear of Charybdis. In such cases, the quantity eaten must be very moderate, and, after the acute attack has subsided, every means must be taken, in conjunction with the thermaclin, to improve the general health; as the daily use of the shower-bath, pure air, exercise sufficient to produce appetite, and appropriate medicine.

When, by these means, the stomach has regained its healthy tone, then the patient will do well, carefully to lessen his amount of animal food, and fall back upon a few of the articles of diet included in the oleaginous, or rather saccharine principles.

Of the injurious tendency of fermented liquors, there can be no doubt whatever, although some kinds are less so than others. With dyspeptic individuals, it may even sometimes be necessary, to prescribe a little brandy at dinner, to stimulate the stomach to more perfect digestion. Some kind of wines, also, are more mischievous than others; champagne, for instance, appears at once to call into action the chemical affinities, which produce the deposit of urate of soda, and thus has been known to have been the exciting cause of the first attack; and many persons can never partake of a single glass of this wine, without inducing gouty symptoms.*

It has been proved, beyond the possibility of doubt, that in no case, even where the severest labour is performed, (whilst a due supply of animal nourishment is afforded), are fermented liquids necessary to support strength; or, in fact, do give *permanent strength.* In very cold countries they may be taken with comparative impunity, to what they may in warmer, or more temperate climes; in the former, from the large amount of carbon which enters into their composition, they help to sustain animal heat; but in no constitution are they less admissible, than in the gouty diathesis.

On the other hand, it would be as absurd to deprive a weakened stomach suddenly, of its accustomed stimuli, as it would be in the case of a drunkard, labouring under delirium tremens; such changes must be made cautiously and gradually, first restricting the patient to such a beverage, as is known to be least injurious to him, and as his digestive powers improve, and his food becomes more perfectly assimilated, by then persuading him to leave off alcoholic stimuli altogether.

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* All wines in which the fermentation has not been completed, are of this description; comprehending all sweet wines, (such as our ill-fermented home-made wines,) together with the effervescing and sour wines of France,—the clarets. For gouty subjects, the *least innocuous* is a glass of old and dry sherry. In all bottled-beer, the fermentation is not fully completed, it should therefore be avoided. The least injurious is the light, bitter beer, with a double portion of hops, prepared for the India market; where this can be obtained sound, in draught, it should be preferred.

Exercise is a most important item in the treatment of gout; but to recommend it, under the old mode of practice, was indeed proposing that which was impracticable. But this objection will now be no longer valid; the long confinement to the sick-room will become mere matter of history, and the crutch, exchanged for the walking-stick, will be hung up as a trophy of victory. Be it remembered, that by exercise, a more rapid change of matter is effected, and thus, not only is the existing gouty matter eliminated, but more healthy secretions formed in its place. In promoting perspiration, therefore, by exercise, (always an important object to keep in view,) much gouty matter will be excreted through the skin. There is one point, therefore, with respect to exercise in which I must take leave to differ from most writers on gout.

Patients are directed to stop short of fatigue; whereas, I would say, continue your exercise *until you are fatigued.* In fact, this is the only criterion that enough has been taken. It proves that considerable change of matter has taken place, and that, consequently, the muscular system wants renovating; hence, the improved appetite, and sound and refreshing sleep, thereby induced. This is the very point to be aimed at, for, we may be assured, that the new material, (always supposing that a proper diet is used,) will be purer than the old; and thus in time, the abnormal secretions become altered. Besides that, the important effect of perspiration is rarely produced, except through fatigue.

It may appear undignified to take a hint from the stable, or the race-course, but, nevertheless, the trainer affords us one, well worthy our consideration; in fact, our objects ought to be the same, viz., to bring the physical constitution of the patient to the highest point of perfection. For this purpose, the trainer covers his man with an abundance of clothing, and, on an empty stomach, urges him along at accelerated speed; the consequence of which is, abundant perspiration, and loss of weight. All superfluous matter is thus got rid of, and, after a certain time, the muscular frame is found to be in a high state of tonicity.*

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* So far as the reduction of weight is concerned, that which it takes the trainer a week to perform, by fatiguing exercise, under an enormous weight of clothing, the Thermaclin will effect at a single operation. But still it is important to bear in mind, that his object is, not only to reduce weight, but to bring the muscular system into a high state of tonicity, and that this can only be effected by exercise.

In taking exercise, due regard must be had, that the functions of digestion be not interfered with. Thus, the invalid should rest at least an hour after breakfast, and double that time after dinner. Early-rising, and a walk before breakfast, where the constitution will admit of it, is also very desirable.

Late hours are, in every way, very prejudicial to the invalid; an early dinner, even with persons in good health, is more easily digested than a late one; and two hours' sleep, before midnight, is worth double the number after.

When the individual is subject to cold feet in bed, which, with gouty persons, is frequently the case, a short walk before retiring to rest, when the weather will permit, is of infinite service; determining the blood from the head to the extremities, and keeping the latter in a glow the whole night.

The foregoing observations have reference, not only to patients under cure, but also to those from whom the gouty disposition has been removed. It is especially incumbent on them to persevere in well doing; for, whether the disease be hereditary, or acquired, the constitution is so predisposed to secrete the abnormal products of gout, that it will require great circumspection on their part to prevent its return.

CHAPTER IX.

ON THE PREVENTION OF GOUT; AND THE GENERAL REGIMEN PROPER FOR GOUTY SUBJECTS.

There is no cause more active in producing disease than impure air, nor any less suspected, because its effects, though sure, are silent and unseen. This is a subject on which most governments have much to answer for; they are not expected to provide the people with food, or clothing; but pure air and light, by proper sanatory regulations, may always be secured to them, instead of, as now, being made the subject of taxation.

Oxygen is that portion of atmospheric air, on which its vitality consists. It acts upon the human lungs the same as on a blacksmith's fire; if poured in, in a sufficient quantity, the fire burns bright and clear; but if the air be foul, or damp, or deficient in quantity, then the fire burns low. There are two ways in which an individual breathing a close and heated atmosphere suffers injury. First, by inhaling a quantity of carbonic acid gas; and, secondly, by breathing air too much rarified, and, therefore, not containing its due proportion of oxygen in a given volume; in fact, a third cause of injury may, with too much truth, be added, namely, the inhaling of various noxious gases, in lieu of pure atmospheric air. The consequence being, that the capillary system, in which all organic changes take place, not being supplied with a sufficient quantity of oxygenised or arterialised blood, morbid products are secreted. To the gouty subject, therefore, the very essence of whose disease consists in the production of abnormal products, the importance of breathing pure air must be sufficiently apparent.

But it must be remembered, that impure air is generated in certain parts of the country, as well as in towns. Wherever the ground is low, and marshy, with stagnant waters, or open drains, or where the soil is clayey, and therefore damp, the same effects will ensue; to which must be added, that which arises from damp alone, universally admitted to be injurious to gouty constitutions.

There is also another source for malaria, to be found in many dwelling-houses, arising from drains and water-closets; this, if possible, is the worst, and should be carefully guarded against.

The gouty individual will, therefore, do well to select a locality high and dry; on a chalky, sandy, or gravelly soil, and, if possible, sheltered from the north and east winds. Such a situation the author, from long experience, has found Blackheath to be; situated on a high and broad table-land, the air is pure and bracing, but not so keen, as if on the summit of a hill. It is well defended on the north and east by the trees of Greenwich Park, and the higher ground of Shooter's Hill; whilst to the south and west it is exposed. In addition to this, it has a deep subsoil of gravel, which renders the surface dry, within half an hour after rain, so that it may be quoted as a locality, admirably adapted not only for the gouty subject but for invalids in general.

In speaking of exercise, I omitted to mention, that it would be desirable it should be such, as would call into action all the various muscles of the body; this, no *one* kind of exertion is capable of effecting. In general, one half of the body remains at rest, to form a fulcrum for the other half to act from; thus, in walking, the trunk is fixed,—in riding, the lower extremities,—whilst in rowing, these, with the pelvis, are immovable. These three kinds of exercise united, will serve as examples of what is required to put in action the whole muscular frame. However, where these cannot be obtained, or rather the two last, many others may be substituted, which will readily occur to the mind of the reader, especially gardening and digging; sawing is admirable exercise, especially the vertical action; dumb-bells, also, are useful, when persevered in.

After having gone through a course of the Thermaclin, most patients will have become accustomed to the use of the shower-bath, and it will be well, that they persevere in its use, as a part of their daily toilet. It is not necessary again to repeat the importance of attending to the healthy functions of the skin; be it remembered, on these depend, most materially, whether they shall or shall not, in future, be subject to their old enemy. Let it not be forgotten, that in the healthy state of the insensible perspiration, the seeds, so to speak, of their complaint are excreted, and so got rid of, through the skin; and further, that the cutaneous surface cannot continue in a healthy state, unless frequently exposed to the exhilarating influence of cold water. If, as in some cases, the shower-bath cannot be borne, it must then be exchanged for the sponging-bath, which may be rendered saline, by the addition of salt, or have mixed with it some nitro-muriatic acid, to render it more stimulating.

The gouty subject, as well as most other invalids, should wear flannel, or fleecy hosiery, next the skin; but not at night. It is worn to prevent variations in temperature from being felt; in bed, therefore, where it is uniform, it is not required; and besides, it retards the escape of the insensible perspiration.

Sheets and shirts, for day and night, are best made of calico.

Damp feet should be particularly guarded against, for which there is not a better remedy than horse-hair soles, which keep the feet both dry and warm. On accidentally getting wet-footed, let the individual endeavour to keep in action, until his return home, and then, immediately place his feet in a water-bath, at 100° Fahr., for fifteen or twenty minutes, in which a handful of the best flour of mustard has been mixed.

General friction to the whole surface of the skin is of much importance, and should be had recourse to, both night and morning; it stimulates the cutaneous vessels to more energetic action. Sir William Temple used to say, "No man need have gout, who can keep a slave to rub him."

Pure, soft water, is the best beverage, especially rain, or distilled water; should this be found insipid, carbonic acid gas could easily be compressed into it, or soda-water may be drunk, made in the same way. Where there is any hepatic congestion, the Pulnau water is an excellent drink; but for general use, the taste soon becomes accustomed to that of pure, soft water, and soon prefers it to any other drink. Where there is dyspepsia, a salt-spoonful of the bicarbonate of soda, or phosphate of soda, may be dissolved in the tumbler of water, used at dinner, with great benefit.

There is one subject on which it may be expected I should make some observation, namely, on the hydropathic plan of drinking profusely of cold water. It has been mentioned already, that the elements of water, (oxygen and hydrogen,) form two of the four essential ultimate elements of organic life; and that water forms the only food of some of the lower animals. Whether any portion of it is decomposed into its constituent elements in the human body, (which it must be, to serve as food,) or only acts as a means for diluting the food, is by no means ascertained. When we consider the large amount of oxygen (85 parts in 100) it contains, we can hardly consider the former supposition to be correct, inasmuch, as the very variable and large quantity of oxygen, which would then be set free, must have an important and perceptible effect on the human organism. It is, however, possible, that some small portion of the quantity drunk may be decomposed; however that may be, when we consider, that all liquids that enter the stomach must mix with the general circulation of the blood, before they are carried off by the kidneys, it may have the effect of dissolving some of the more insoluble salts, and thus facilitate their passage through those organs. In this way, it may be considered as purifying and depurating the blood. There is another still more important view of the matter: all liquids taken into the system, are given out again at the temperature of the blood, 97·5° Fahr. This additional temperature can only be obtained, by an acceleration of the change of matter, and, by thus generating more caloric, it answers a somewhat similar purpose to exercise, and will be very useful to those, who, from any cause, are unable to take it. It may also be looked upon as an internal cold-bath; the caloric abstracted from the stomach, and intestines, by the water, must be renewed, which can only be effected in the way above mentioned.

Within rational restrictions, it may, therefore, be considered a safe and healthful practice, and, with but few exceptions, generally useful to the gouty invalid.

CASES.

Case I.

A gentleman, in easy circumstances, about thirty-five years of age, who, up to within a year of this period, had resided in the country, where he had joined regularly in the sports of the field, but since his marriage had lived in London, was seized, in the middle of the night, with severe pain in the great toe. In the morning he found it both red and swollen, and in some alarm applied to me, not having before experienced a similar attack.

On examining the limb, there could be no doubt about the nature of the complaint. Upon questioning him, he told me he was not aware of any hereditary predisposition in the family to gout. He was a fine young man, of florid complexion, and large build, with a good appetite, and free from any dyspeptic symptoms; his pulse was good, and tongue clean. He admitted, that for the last two months he had had wandering pains, which he had attributed to rheumatism, although he had never suffered from that complaint, either in the acute or chronic form, and that since his residence in London, his usual amount of exercise was considerably diminished.

This case occurred in the year 1839, soon after I had first commenced the use of the Thermaclin. I had never yet tried it in gout, nor was I at all aware of its value in that complaint; however, feeling assured it could do no harm, and sick of the incertitude of the usual mode of treatment, I determined upon trying it, to which my patient readily consented. He, fortunately, had taken a dose of salts that morning, and therefore, to save time, I placed him at once in the warm-bath, and after half an hour's good washing, he was transferred to the Thermaclin. Perspiration soon broke out, and most profusely; he was literally "bathed in sweat."

He had not been in the Thermaclin more than an hour, when, to his surprise, as well as my own, he suddenly exclaimed, "his pains had left him." He remained in it half an hour longer, when, upon getting out, to my great astonishment, not only the pain, but the redness and swelling, had both disappeared! I then advised him to get into a warm bed, and remain with me till the next day.

This was a most successful issue to my first trial of the Thermaclin in gout, and encouraged me to persevere, and as I had uniformly found that the first Thermaclin did not appear fully to bring out the latent perspiration, or at any rate, that patients always appeared to perspire more freely and easily in the second, I determined, although all symptoms of gout had disappeared, that he should use it once more. Accordingly, early in the morning, he was again placed in it for two hours.

So long ago as this period, I was fully aware of the great benefit to be derived, in many complaints, from the sudden transition from the temperature of the Thermaclin to that of the shower-bath, and as he appeared as free from gout as ever he was in his life, and, furthermore, as I was anxious to secure him from taking cold, and to give him the feeling of tonicity which that practice always induces, I persuaded him to try it, when he described the sensation as being most grateful and refreshing. He then dressed himself, and left me.

I was not then aware of the *modus operandi* of the thermaclin in gout, nor of the possibility, by its means, of abstracting gouty matter from the system; but knowing that I had the power of reducing the weight of the body by its use, and finding that my patient had latterly considerably gained in flesh, I recommended him to persevere in its use for some little time; he accordingly called on me twice a week, for the next six weeks, and remained in the Thermaclin two hours each time, at the expiration of which, he found he had lost two stone in weight; to this, together with the abstemious diet to which he rigidly adhered, I ascribe his total freedom from the complaint for the next five years. He came to me in the year 1845, with another attack, and acknowledged that he had latterly departed from his usual temperate mode of living. He was, however, again very quickly relieved.

Case II.

A gentleman, about forty years of age, whom I had once known in very different circumstances, but who had lately been placed in comparative affluence, by the bequest of a maiden aunt of £18,000, was seized with his first attack, in the knee and foot, in the winter of 1843. For the two preceding years his mode of living had been greatly changed, as he said, for the better. He was a single man, kept his cab, and had joined one of the west end clubs. The attack was somewhat severe, his pulse was quick, tongue furred, with some heat of skin; he had dined out on the preceding day, and had drunk freely of champagne.

I did not consider him in a fit state to use the Thermaclin, but ordered him into the warm-bath, some saline antimonial medicine, a dose of calomel, and a brisk purgative, and placed him in bed.

In the morning, his general feelings were much relieved, with the exception of the knee and foot, which, if anything, were more swollen; his tongue was clean, and his medicine had acted freely. I now placed him in the Thermaclin: there was some difficulty in inducing perspiration, and the odour was very offensive; after three hours, he was taken out, and dressed. The limb was then somewhat less tender, and the swelling a little diminished, but no very great amendment had taken place.

In the evening, he went into it again, and soon perspired very freely, which, with the aid of copious draughts of cold water, was kept up for two hours, after which he was removed to a warm bed. He now expressed himself as being much relieved, and able to move both leg and foot, which before was impossible. He took some beef-tea, and was left to his repose.

The next morning, I found him most materially improved; the tumefaction and redness were much lessened, although not quite gone, and he was able to walk about his room. During the day, the amendment continued, and, towards night, he described himself as being quite well.

As, however, I was not quite satisfied with the appearance of the limb, and as I wished him to have the reaction of the shower-bath, on the next morning, I advised him to use the Thermaclin once more, to which he readily consented, and remained in it three hours, so little did it incommode him; from it, he stepped under the shower-bath, and was then well rubbed down, and dressed; after which, the perspiration again broke out, which, indeed, is not unusually the case. The only vestige of the complaint now, was a slight stiffness in the toe, which he afterwards told me soon disappeared.

A remarkable circumstance occurred in this case: after the second Thermaclin, the bath attendant called my attention to the peculiar appearance of the blanket on which the patient had lain, on which a quantity of a white, chalky powder, was deposited, marking where the perspirable fluid had fallen from the body. I desired him to collect it, and, on examination, it proved to be *urate of soda.*

In the autumn of the same year, this gentleman had a second attack, when he admitted, that, notwithstanding my earnest admonition to the contrary, he had continued, in every respect, his usual mode of living. Where a cause is continued, of course, the effect will continue also. He was, however, relieved as speedily as before, since when I have lost sight of him.

These may be considered as cases of primary gout, that is, where the first attack is uninfluenced by any hereditary predisposition. I will now proceed to relate a case, of an acute attack of old-established gout, where, from the brother of the patient being also subject to the complaint, there could be no doubt of its being a family inheritance. In this case, also, the treatment will be seen to have been still more prompt in affording relief.

Case III.

A gentleman, well known at Lloyd's, about sixty years of age, six feet high, and stout in proportion, weighing seventeen stone, of florid complexion, and healthy constitution, who for many years had been owner and master of a merchant vessel, but had latterly retired from the service with a handsome competency, was the head of a family whom I had had the pleasure of attending for many years, but, strange to say, to whom, himself, I had never been introduced, from his great dislike to medical interference in general.

Latterly, his lady had occasionally informed me, that her husband was suffering from gout, but that nothing could persuade him to have my assistance. At last, while I was in attendance on some one of the family, I was admitted to an audience, but, even then, he would submit to nothing beyond the old mode of treatment, although he had been confined to his room several weeks. I found him, according to the orthodox practice, with his legs swathed in flannel, and suffering from a most acute attack of gout in the knee and foot. Having ordered twenty leeches to be applied to the knee, to be followed by warm fomentations, and having prescribed, amongst other things, some calomel and colchicum, I took my leave.

On the following day, he was not much relieved, and after a few days' attendance, of which both he and I seemed to be tired, I took my leave, with the assurance from him, that he should very soon be able to go out.

About a month after this, on making a friendly call, I was surprised to find him still confined to his room, with but little mitigation from pain. Again, some weeks passed over, when I received a note from him, to say that he was willing to place himself entirely in my hands, and that he would come to my house on the following day. He was on crutches, and, with two assistants, had great difficulty in getting out of the carriage and into the house. His knee was immensely swollen, and acutely painful; his face turgid from congestion, with a pulse beating 120 strokes in the minute, full and bounding. To have placed him in the Thermaclin in such a state would have been madness; previous bloodletting was imperative, and yet I had the greatest difficulty to persuade him to lose any; at last he consented, and while in the warm bath, I abstracted about 40 oz. from the arm, from a large orifice.* This lowered his pulse very considerably, and I ventured to place him in the Thermaclin, which was somewhat oppressive, but after a while, he perspired very profusely, and remained in it between three and four hours, when he was removed to bed.

The next morning he was in every respect much relieved, and in the evening was anxious to take the Thermaclin again, which he did, with great and decided benefit, and continued in a profuse perspiration for more than three hours. On the following day he took it for the third, and last, time, which completed his cure. I would fain have persuaded him to have remained longer, but could not succeed; he took his leave of me with these words, "Doctor, I feel myself twenty years younger, and can now walk as well as you can!" He came to me on a Tuesday afternoon, and left on the Thursday following, in the beginning of the year 1842.

I never could persuade this gentleman, who is much engaged in business, to sacrifice the time necessary for effecting a permanent cure; that is, for removing the gouty diathesis. He satisfies himself in getting rid of his enemy on such easy terms; he comes to me about once in five or six months, specifies the time he means to stop, generally from Saturday till Monday, and uniformly leaves me cured. His attacks, however, have gradually become milder, and only twice, I think, since his first visit, have I seen the same sthenic state of system, when we were again obliged to have recourse to bloodletting before I could produce any marked effect upon the disease by the use of the Thermaclin. He is now very abstemious, seldom taking animal food oftener than three or four times a week.

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* The blood, when cold, was highly cupped and buffed.

I am happy to say this gentleman, since my first introduction to him, has been one of my warmest friends. I owe him, as also his family, many acts of kindness, amongst others, that of introducing me, at different times, to at least twenty new patients.

Case IV.

A gentleman applied to me, for the first time, in the year 1846, who had been long subject to gout, but had for some time avoided a decided fit, by taking colchicum; his health during the same period had become much impaired, and his stomach greatly deranged; every sort of vegetable food, except bread, disagreed with him, causing much acidity and flatus; he had also, lately been subject to cramp in the extremities at night. He was of a loose flabby texture, and there was œdema of the feet, yet, notwithstanding the state of his stomach, he had a voracious appetite.

For some time before I saw him, he had become subject to a variety of anomalous pains, chiefly of a spasmodic character, in different parts of the abdomen, and about the regions of the heart, which greatly distressed him; the action of that organ was also irregular, and he was troubled with distressing dreams, his tongue was furred, and the bowels very irregular. On the day he called on me, the pains in the stomach and bowels had become almost unbearable, although occasionally disappearing. On examining the heart, no abnormal sound could be perceived.

Both he and myself attributed his present sufferings to the want of a decided fit of gout in the extremities, and we agreed, that, after the action of a warm stomachic aperient, he should try the Thermaclin. I should have remarked, that his skin appeared to be by no means in a healthy state, being rough, dry, and shrivelled.

On using the warm water-bath, I gave him a wineglassful of brandy, a teaspoonful of tincture of ginger, and cajeput oil in warm water. He appeared easier in the bath, and was relieved of much wind. In about an hour after being in the Thermaclin, he exclaimed, that " the pains were flying to his feet." At the expiration of the second hour, he was removed to bed, and was then free from pain, but no gout had appeared in the extremities.

In the morning, he told me he had passed a better night than for some time previously; had had no cramp or uneasy dreams, and had slept soundly. The next day was passed free from pain, and in the evening, the Thermaclin was again used, but for two hours only. After using it the third time, all gouty feelings appeared to have left him, but without any marked expression externally. His pulse, also, had become quite regular.

I recommended this gentleman to remain with me for the next three months, not only to eradicate all remains of gout, but also to improve his general health, which, by a careful exhibition of the vegetable bitters, with the alkalies and mineral acids, we succeeded in doing. Towards the latter part of the time, he also used the shower-bath, with manifest advantage.

This case is a convincing proof of the truth of the assertion, that the gouty matter is actually eliminated through the skin by the action of the Thermaclin; and I put it to those of my readers, who may be practically acquainted with the complaint, whether they ever saw a case of irregular gout so completely relieved without its first coming to a crisis?

CASE V.

RHEUMATIC GOUT.

A highly respectable tradesman of London, forty-six years of age, of sanguine temperament, full chested, and of very industrious habits, was first attacked with gout about six years ago, after having commenced travelling for himself about two years, during which time, and indeed for many years previous, he had been in the habit of taking two or three glasses of gin-and-water, "pretty strong," daily, but no wine.

The complaint first showed itself at the insertion of the tendo achillis with the heel, and continued about a fortnight. The second attack, nine months after, was more severe, and lasted a month, shifting from the great toe of one foot to that of the other; he then took colchicum and magnesia. For the next three years he had a fit about once a year, each becoming more severe, after this he took a proprietary medicine, and was free for two years, and hoped that he had conquered his complaint; but early in December, 1848, whilst at Swavesey, a village in the low country, near Cambridge, he took cold, attended with shivering and sore throat; five days after which, gout reappeared, and continued a fortnight, when, feeling himself somewhat better, he ventured to go into Yorkshire to bury a friend, whose funeral, also, he was imprudent enough to attend, on a bleak, cold, and wet day; the consequence of which was a return of his gout, attended with rheumatism, rheumatic gout. He managed to get home to London, and kept his bed about a fortnight, when, very imprudently, he again went to Swavesey on some urgent business, from whence he returned much worse; thus, from the 12th of December to the 21st of January, (the day on which I first saw him,) he had been suffering more or less from rheumatic gout; on that day I found him with an acute attack in both knees, and also less severely in his feet.

On the 25th he came to my house, and after the third Thermaclin felt himself fully relieved, with the exception of stiffness, when he incautiously walked out. The weather, at this time, was very severe, attended by fluctuations of the barometer of a most extraordinary character. In the evening of this day, he felt a return of pain in one knee, and again took the Thermaclin, which relieved it; but during the night, he was attacked in the other knee, with all the original severity of the complaint.

The case had now assumed so completely the form of acute rheumatism, that during the continuance of the inflammatory symptoms, I did not consider him in a fit state to use the Thermaclin, but contented myself with using warm fomentations, and the German water-dressing. In three days, the inflammatory action subsided, when he resumed the use of the Thermaclin every second day. He was also ordered a stimulating embrocation for the knees.

About the middle of February he was so completely cured of all his complaints, that I felt quite safe in giving him the shower-bath in the morning, which he continues up to the present time. He left me on the 22d of February quite well, and has remained so ever since. One observation that he made deserves, in a physiological point of view, to be mentioned, namely, that from the day he first took cold at Swavesey, *until* he entered the Thermaclin, "*he had never felt warm.*"

Case VI.

In the year 1847, a gentleman of middle age, holding a responsible situation in one of the large banking-houses in Lombard Street, applied to me for a smart attack, (his first,) in the great toe, which showed the usual symptoms of pain, redness, and tumefaction. He was of the usual gouty conformation, as to build and size, and in every other respect, in good health. He took the Thermaclin only twice, and whilst in the second, on examining his feet, all redness and swelling, had so entirely subsided, that I could not tell which toe had been the seat of the complaint. He has had no return since, and living near me I see him frequently.

Case VII.

Feb. 1845.—Capt. S., æt. about thirty-five, consulted me, for what he called, rheumatic gout, in the instep; and for which he had been treated by different practitioners, for the two preceding years. He had been a fine young man, but was then a good deal attenuated, and appeared much out of health. He told me, that in consequence of his fondness for travel, he had exchanged into a regiment, going from India to New South Wales, and on his arrival at the latter place, volunteered to join a party, about to explore the interior. In this way he was engaged for three years, during which time he suffered great privations, not only from the want of water, but also from the bad water, which they were at times obliged to make use of. He then returned to England, suffering, as he considered, from rheumatic gout.

When he called on me, in addition to the pain, and redness in the foot, he had thirst, pain in the loins, and a peculiar thick, white, and viscid coating of the tongue. From the aggregation of symptoms, I was induced to suspect disease of the kidney, and requested him to pass a little water, which at once confirmed my worst suspicions; as both by heat and nitric acid, almost the whole fluid was coagulated, showing albuminuria in a very advanced stage. Of course, in such a case, there was no hope of a cure, but rather a daily expectation of his becoming rapidly worse.

At his own request, and without the slightest hope of benefit, on my part, he went into the Thermaclin on the 6th of February, and to my great surprise, whilst he was in it, *the tongue became perfectly clean;* the gouty symptoms also disappeared. The latter returned in a few days, whilst the tongue became again coated within a few hours. On the 16th, the Thermaclin was repeated, with the same temporary benefit.

He became rapidly worse, and tormented with incessant thirst, which no amount of fluid would allay for more than an instant. On the 14th of March, retention of urine supervened, which was relieved by the catheter, and on the 16th he died.

At the post-mortem examination, I was kindly assisted by the present Mr. Callaway, and Dr. Bright who had taken great interest in the case, was also present. Both kidneys were diseased, and the right much enlarged, exhibiting all the characteristics of the disease, in a marked degree.

The complete, though temporary, relief, he obtained from pain, together with the removal of the sordes, from the tongue, by the use of the Thermaclin, was very significant of its power over gout, even where organic disease precluded all hope of a cure. The case also exemplifies the importance of analysing the urine, in all cases of gout and rheumatism.

CASE VIII.

It has been mentioned, as one of the leading features of the Thermaclin, that, *when required*, it has the power of reducing the absolute weight of the body very considerably. This reduction takes place in the cellular and adipose tissues, and does not seem to affect the muscular fibre. As an illustration of this absorptive power, I may mention the case of a young Maltese gentleman, who placed himself under my care, about this time two years, for rheumatic gout. The latter he inherited from his father, the rheumatism was induced by his leaving off his flannel-waistcoat, during the three hot days, which occurred in the beginning of April, 1848.

For a youth of his age, (only nineteen,) he was absurdly fat; with a flabby texture, and but little muscular power. He only used the Thermaclin twice, before he was cured; but, in these two exhibitions of it, he must have lost ten pounds in weight; as a fortnight afterwards, when he happened to be weighed, he found he was then eight pounds lighter than before his illness. The improvement in his appearance and health, from this loss of adipose matter, was very remarkable.

REMARKS.

The many forms in which chronic gout sometimes manifests itself in the system, as the irregular, the retrocedent, &c., might have been further illustrated by cases; but, as all these varieties only show want of power in the constitution, to develope an acute paroxysm, and as our object, by this treatment, is to abstract the gouty matter from the body, it matters little whether it is seated in the joints, or remains suspended in the circulating fluids; indeed, we shall find it easier to remove under the latter circumstances than the former.

I have now finished what I have to say on this important subject; and in taking leave of the reader, I would strongly advise him, if a gouty subject, or rather his medical attendant, to follow out the treatment here laid down. In it there is no repelling of the gouty matter to the interior, nor blunting the sensibility of the nervous system by colchicum, hellebore, or opium. On the contrary, in every case, that has fallen under my notice, not only has relief been obtained, in infinitely less time, but it has been also more permanent; the general health uniformly improving, as the arthritic matter was got rid of.

The only difficulty with the practitioner will be, the time devoted to his patient, whilst in the Thermaclin. When used at the house of the patient, this is an important consideration; for his attention will be required throughout its operation. This, together with the greater facilities afforded in all respects, by using it at the house of the practitioner himself, induced me originally to make arrangements for receiving patients into mine; by which means, other important advantages are also obtained.

In chronic complaints, where it is necessary to continue for some time a certain course of treatment, and regimen, the resolution of the patient sometimes flags; when, if residing under the constant supervision of his medical adviser, he is sustained, and encouraged to persevere in well doing, whilst his diet is daily regulated, and any untoward symptom which may happen to arise, is at once subdued.

In the Preface, the Thermaclin is spoken of as being equally useful in gout, and its congeners; by which are included sciatica, lumbago, and rheumatism. If used at the onset of these complaints, it is perfectly surprising how quickly they are relieved. In lumbago, for instance, where you are generally applied to at the commencement of the attack, I have seen patients come to me, who had the greatest possible difficulty, in bending the body to sit down, go into the Thermaclin, and after using the shower bath, leave the house, perfectly free from pain. Where the complaint has been of long standing, of course, the system must be persevered with, when it will be found infinitely superior to any other method of treatment.

Before laying down my pen, I would avail myself of this opportunity to suggest, that other diseases, besides gout, may, perhaps, have their origin in some abnormal product of the metamorphosis of the albuminous tissues, arising, probably, from a want of oxygen, compared to the amount of nitrogenous matter requiring to be removed, and where this abnormal product cannot be excreted by the usual outlets. That thus salts are formed, richer in nitrogen than even uric acid, and like it, perhaps, insoluble in the human fluids. And that in this way, and in like manner to urate of soda, nature deposits, so to speak, this morbid matter, on parts not necessary to the carrying on of the vital functions; as the glandular system, and uterus; and thus rids the circulating fluids of that, which otherwise might, perhaps, put a stop to the vital functions.

In this way, one may easily conceive, that scirrhus and cancer have their origin in some still more mischievous compounds of urea, than uric acid, probably cyanuric acid; and that, in this condensed form, the system is relieved of morbid matter, which otherwise might produce more fatal consequences.

This opinion is much strengthened, by comparing the chemical composition of urea, to that of uric acid, and cyanuric acid: thus, urea consists, according to Brande, of

Carbon	1	6	20.00
Hydrogen . . .	2	2	6.67
Oxygen	1	8	26.66
Nitrogen . . .	1	14	46.67
Urea	1	30	100.00

Uric acid consists of

Carbon	5	30	35.7
Hydrogen . . .	2	2	2.3
Oxygen	3	24	28.6
Nitrogen . . .	2	28	33.4
Uric Acid	1	84	100.0

Cyanuric acid consists of

Carbon	6	36	27.8
Hydrogen . . .	3	3	2.4
Oxygen	6	48	37.2
Nitrogen . . .	3	42	32.6
Cyanuric Acid	1	129	100.0

So that each atom of uric acid contains a double proportional of nitrogen, compared to urea, whilst cyanuric acid contains double that of uric acid. The immensely increased amount of carbon also, in the two latter salts, deserves consideration. Nor am I unsupported by good authority in this supposition. Prout says, "When the formation of lithic acid, or its compounds, become excessive, they prove a source of disease. There is also reason to believe, that many formidable diseases are occasionally connected with the destructive mal-assimilation of the albuminous principles; from which principles, various matters, of a highly deleterious character, and related to the poisonous principle of cyanogen, as a basis, may be readily supposed to be eliminated."

That it is the want of oxygen also, or, in other words, of exercise, (for by no other means can we increase the amount of oxygen,) that causes these abnormal products, is rendered more than probable, by the following observation of Liebig: "By the addition of oxygen, uric acid is resolved into three products, allantoine, urea, and oxalic acid. *By a greater addition of oxygen*, uric acid is at *once* resolved into urea, and carbonic acid."

Be the fact, however, what it may, it is certain that, by the careful use of the Thermaclin, as an antiphlogistic remedy, in addition to medicine, an appropriate regimen, and an abstemious diet, which such cases demand, I have succeeded in resolving many tumours, both in the uterus and breast, which, I believe, some practitioners would have pronounced as having a malignant, if not cancerous character.

Moreover, in many cases, where, from the premonitory symptoms, and from the constitution of the individual, I had reason to suspect that such might, at a later period, be the case; and where I have had sufficient influence to persuade them to make use of these means, before any mischief had actually taken place; I believe I have been successful in preventing it, and in thus conducting them safely through the most critical period of their lives.

APPENDIX.

ROMAN BATHS.

The remains of the baths at Rome, are amongst the greatest wonders of the eternal city. Their magnitude astonishes and confounds the beholder, leading him to ask, what could have been the uses of such vast structures? Those of the Imperial Palace occupied a considerable portion of the city; every dwelling-house, of any magnitude, had its private baths, and every Roman city its public ones.

Many circumstances had led me to believe, that the Thermaclin was analogous to the Thermæ of the antients; but I was not certain of the fact, until I met with Sir William Gells's splendid work, on the 'Ruins of Pompeii,' where, from the lightness of the material that entombed the city, and the complete exclusion of air, the public baths were found in an almost perfect state; and the uses of the different rooms could be distinctly ascertained.

I confess I am much gratified by this discovery, as it will convince my readers, that the Thermaclin is no new and untried remedy; but, on the contrary, one that was in general use, two thousand years ago, among the most enlightened people of the earth, and highly extolled, by their medical writers, as being one of the most valuable of their therapeutic remedies.

It is quite clear, from the writings of Galen and Celsus, and also from the extensive remains, existing at the present day, in an almost perfect state at Pompeii, that the Roman method of bathing, must have been something very different to our own. From the universality of the practice, in every part of the empire, the above authors, in no part of their works, have considered it necessary to be precise, in their explanation on this point; they never contemplated, that that, which was then so common, could ever be lost sight of or forgotten; in short, they never could have foreseen the destruction which, even in their time, was impending over the Roman empire; nor the dark ages which were to follow on its decline. More than all, they never hoped, or expected, that their works would survive this epoch, and that, at the expiration of eighteen hundred years, they would be again read, with probably, greater interest than they excited in their own time.

Yet, it is strange, when we recollect that the Alexandrian Library was burnt, in supplying fuel for the baths of their conquerors, and that they retained the latter, when they destroyed the Roman literature; moreover, when we know that the Turks have continued this system of bathing to the present day, and also that it has been in constant use, among their neighbours the Russians; it is strange, I say, that all this should have been overlooked, and that the system should have remained dormant in Europe, or at least in England, until now.

Although that may not properly be called a revival, which has never entirely fallen into desuetude, yet, as far as our own country is concerned, it is so in the strictest sense of the term, and I flatter myself, that I may, with strict truth, claim its introduction as my own.

The Thermaclin, in its simple form, is to all intents and purposes the antient Roman method of bathing, and that which, in spite of our superior knowledge of chemistry and physiology, made the practice of the Roman physicians so superior to our own, in the disease now under consideration, Gout. From the process constituting a part of their almost daily toilet, the skin was no doubt kept in so healthy a state, as to tend most materially to prevent and remove arthritic action. In fact, it is a common remark of medical writers, that those who perspire freely, rarely have gout.

The only difference between the Thermaclin and the Roman Thermæ is, that the latter were intended for the use of many persons at the same time; the former, but for one. That which, in the Roman Thermæ, occupied a room, in the Thermaclin is comprised within the compass of a small bed. It has, moreover, this great advantage over its prototype, viz. the capability of being medicated.

Sir William Gell says, "The practice of bathing was so universal among the Romans, that they required large buildings for the purpose; the separate apartments of which, were each appropriated to a distinct use. Thus, some of them were furnished with double floors and walls, with a space between, the better to retain the heat. The mode of warming these rooms, was by means of hot water or steam, as the remains of the pipes and cauldrons at Pompeii testify.

"One of these rooms, heated to a moderate degree, was called the Tepidarium, where the bathers undressed, and remained a certain time. A second room, opening into this, was the Caldarium, or hot room, where the sweating process was carried on. From thence, in due time, they passed into the Natatorium, or Frigidarium, where there were both cold plunging, sponging, and shower baths.

"The mode of using these rooms was in the order above stated, and the bathers, immediately on leaving the sweating apartment, plunged into the swimming, or went under the shower bath. From this they passed into a fourth room, moderately heated, where they were rubbed down, *scraped,* and dressed.

"Those who did not choose to use cold water, after the sudatorium or sweating room, went back into the tapidarium, and allowed themselves to cool gradually, and were then anointed, to prevent the action of the cold air upon their open pores."

FINIS.

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